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THE

# NAUTICAL ALMANAC

AND

# ASTRONOMICAL EPHEMERIS

FOR THE YEAR

## 1839,

WITH AN APPENDIX.

---

PUBLISHED BY ORDER OF

THE LORDS COMMISSIONERS OF THE ADMIRALTY.

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# CONTENTS.

## ALPHABETICALLY ARRANGED.

**** The large Roman Numerals indicate the Page of each Month; the small, the Page of the Preface; and the Arabic, the Page of the Book.*

## APPENDIX.

# PREFACE.

The Contents of the Nautical Almanac and Astronomical Ephemeris for the year 1839 are the same generally as those of the preceding years, commencing with 1834. The principal additions are the Meridian Ephemeris of the Planets, which is now, for the first time, inserted in the Nautical Almanac, and is, by order of the Lords Commissioners of the Admiralty, to form a part of each succeeding annual volume; the Moon's Declination at Transit, to the tenth of a second; an Ephemeris of Gambart's Comet; and an Appendix (the paging of which is continued from the Appendix to the Nautical Almanac for 1837), containing a Paper "On the Elements of the Orbit of Halley's Comet, at its appearance in the Years 1835 and 1836."

The Parallaxes and Semidiameters of the Planets are now inserted in a different form in the Meridian Ephemeris of those bodies; and for the Ephemeris of each of the Minor Planets at midnight, for one month preceding and following their respective Oppositions, has been substituted the Ephemeris at Transit for the same period.

The Sun's Longitude from the *Mean* Equinox, the Latitude, and the Earth's Radius Vector have been deduced from the New Tables appended to *Effemeridi Astronomiche di Milano per l'Anno* 1833, (Milano, 1832), using a difference of Meridians $=36^m\ 45^s$.

The Perturbations of Longitude and Radius Vector produced by each of the Planets, Venus, Mars, Jupiter, and Saturn, have been computed accurately from the Tables for every 10th day of the year; the Sums then interpolated with second differences for every 5th day and thence the daily perturbations by simple proportion. The other parts of the calculations have been performed independently for every Mean Noon.

The Latitude of the Sun, depending on the attraction of the Moon, was computed for every day, and that depending upon each of the Planets, Venus and Jupiter, was obtained for each tenth day and interpolated.

The Nutations of the Obliquity of the Ecliptic ($\Delta\omega$) and of Longitude ($\Delta$ L), have been derived from MS. Tables constructed according to the following formulæ:

$$\Delta\omega = \quad 9''\cdot2500 \cos \Omega - 0''\cdot0903 \cos 2\,\Omega + 0''\cdot0900 \cos 2 \quad \text{[illegible]}\cdot5447 \cos 2\,\odot$$

$$\Delta L = -17''\cdot2985 \sin \Omega + 0''\cdot2082 \sin 2\,\Omega - 0''\cdot2074 \sin \quad \text{[illegible]}550 \sin 2\,\odot$$

where $\Omega$ is the Mean Longitude of the Moon's ascending N[illegible] Longitude of the Moon, and $\odot$ the true Longitude of the Sun. (*Ast. So*[illegible] and xv.)

The Mean Obliquity of the Ecliptic [illegible] taken $=23^\circ$ [illegible] ary 1, 1839, and the Mean Annual diminu[illegible] 157. (Bessel[illegible])

The Sun's Right Ascension and [illegible]tion were com[illegible] every Mean Noon.

The Semidiameter of the Sun, at the Earth's Mean Distance, has been taken $=16' \, 0''\cdot9$, as determined by BESSEL from 1698 transits, in which both limbs had been observed at Königsberg, between the Years 1820 and 1828, with REICHENBACH's meridian circle. (BESSEL's *Tab. Reg.* page L.)

The Equatorial Horizontal Parallax of the Sun, at the Earth's Mean Distance, has been taken $= 8''\cdot5776$, as deduced by Professor ENCKE, from the Transits of Venus, in 1761 and 1769. (*Der Venusdurchgang von* 1769, &c. Gotha, 1824. page 108.)

The Constant of Aberration $= 20''\cdot36$. (Preface to *Ast. Soc. Cat.* page x.)

$$\text{The Sidereal Time at Mean Noon} = \frac{\text{Sun's Mean Longitude} + \text{Nutation}}{15}$$

According to Professor BESSEL (*Tab. Reg.* page XXIV), the Mean Longitude of the Sun, at Paris Mean Noon of January $0^d$ of the year $1800+t$, is

$$279^\circ \, 54' \, 1''\cdot36 + t \,.\, 27''\cdot605844 + t^2 \,.\, 0''\cdot0001221805 - f \,.\, 14' \, 47''\cdot083$$

where $f$ denotes, *for the* 19*th century*, the number of years from the preceding bissextile year. Assuming the Meridian of Greenwich to be $9^m \, 21^s\cdot5$ West of that of Paris, and altering the epoch to the Mean Noon of January 1 of the year $1800 + t$, the Sun's Mean Longitude (M) for the meridian of Greenwich is hence found equal to

$$280^\circ \, 53' \, 32''\cdot75 + t \,.\, 27''\cdot605844 + t^2 \,.\, 0''\cdot0001221805 - f \,.\, 14' \, 47''\cdot083,$$

and we have, for the Mean Noon of any day ($n$) of the year $1800+t$,

$$\text{Sidereal Time} = \frac{\text{M}}{15} + n \,.\, 3^m \, 56^s\cdot555348 + \text{Nutation in R. A.}$$

The Longitude of the Moon from the *Mean Equinox*, the Latitude, Horizontal Parallax and Semidiameter have been derived from BURCKHARDT's *Tables de la Lune* (Paris, 1812), using a difference of Meridians $= 9^m \, 21^s$: They have been computed independently and in duplicate for every Mean Noon and Midnight of the Year; and second differences have been taken into account wherever the irregular variation of the Equations rendered such a correction appreciable. The Longitude being reduced to the True Equinox, each set of results has then been differenced to the fourth order, compared and carefully examined. Wherever the progression of the fourth differences indicated a probable error of $0''\cdot7$ or more, the original computations have been examined.

The Right Ascension and Declination have been computed for each noon and midnight, examined by means of differences to the fourth order, and interpolated for every hour. From these have been deduced the Right Ascension and Declination at Transit, on each day of the year.

The Places of Mercury, Venus, and Mars, *from the Mean Equinox*, have been derived from LINDENAU's Tables*, assuming Greenwich to be $42^m \, 56^s$ West of

---

* *Investigatio nova Orbitæ a Mercurio circa Solem descriptæ, accedunt Tabulæ Planetæ ex Elementis recens repertis et Theoria Gravitatis Illust.* De Laplace *constructæ. Auctore* BERNHARDO DE LINDENAU. Gothæ, 1813. 4to.

*Tabulæ Veneris novæ et correctæ ex Theoria Gravitatis clarissimi* De Laplace *et ex Observationibus*

Seeberg; and those of Jupiter, Saturn, and the Georgian, from BOUVARD's new Tables,† with a difference of meridians $= 9^m\ 21^s{\cdot}5$.

For Mercury, the Perturbations were obtained immediately from the Tables for each alternate Mean Noon and interpolated with first differences: the remainder of the calculations were performed independently for every Mean Noon.

For Venus, the Heliocentric Longitude from the *Mean Equinox*, Latitude and Radius Vector, were computed independently for Mean Noon of every eighth day, then interpolated with fourth differences for each day, and the Longitude reduced to the *True Equinox*. The Geocentric places were computed for every fourth day, and the intermediate values obtained by interpolating with fourth differences.

For Mars, the Heliocentric Longitude from the *Mean Equinox*, Latitude and Radius Vector, were obtained independently for Mean Noon of every twelfth day, and interpolated with fourth differences for each day, previously to the application of Nutation. The Geocentric places were computed for every fourth day, and interpolated with fourth differences.

For Jupiter, Saturn, and the Georgian, the Heliocentric Longitude from the *Mean Equinox*, Latitude and Radius Vector, were computed directly from the Tables for Mean Noon at intervals of thirty days; and interpolated, for each day, with second differences, previously to the application of Nutation. The Geocentric places were obtained independently for every sixth day, and interpolated for every day, using differences to the fourth order.

For the Minor Planets, with the Elements of the Orbits of Vesta and Juno given at pages vii and viii of the NAUTICAL ALMANAC for 1838, and those of Pallas and Ceres at pages vii and viii of the NAUTICAL ALMANAC for 1837, the Heliocentric Longitudes have been first computed and the periods of the next Oppositions ascertained approximately. The Oppositions in 1839 are those of Juno, Pallas, and Ceres. For each of these Planets the Variations of the Elements, caused by Venus, the Earth, Mars, Jupiter, and Saturn, have been computed for intervals of eight days, for the whole period between the Oppositions, agreeably to the method described in Professor AIRY's paper, "*On the Calculation of the Perturbations of the Small Planets and the Comets of short period.*"—(APPENDIX to NAUTICAL ALMANAC, 1837, page 149).

For the Perturbations, the following masses of the disturbing Planets have been used: viz.—

| | | |
|---|---|---|
| Venus | $\frac{1}{401211}$ | (AIRY, *On the corrections in the Elements of* Delambre's *Solar Tables*, &c.—*Phil. Trans.*, 1828, page 30). |
| Earth | $\frac{1}{354936}$ | (*Système du Monde*, 5th Edition, page 209). |

*recentissimis in specula Astronomica Seebergensi habitis erutæ. Auctore* BERNHARDO DE LINDENAU. Gothæ, 1810. 4to.

*Tabulæ Martis novæ et correctæ ex Theoria Gravitatis clarissimi* De Laplace *et ex Obs bus recentissimis erutæ. Auctore* BERNHARDO DE LINDENAU. Eisenberg, 1811. 4to.

† *Tables Astronomiques publiées par le Bureau des Longitudes de France, conte Jupiter, de Saturne et d'Uranus, construites d'après la Théorie de la Mécanique* BOUVARD. Paris, 1821. 4to.

| | | |
|---|---|---|
| Mars | $\frac{1}{2680337}$ | (BURCKHARDT, *Conn. des Tems*, 1831, page 153). |
| Jupiter | $\frac{1}{1048 \cdot 70}$ | (AIRY, *Mem. Ast. Soc.*, vol. vi. page 97). |
| Saturn | $\frac{1}{3512}$ | (*Système du Monde*, 5th Edition, page 209). |

The following are the resulting Elements:—

I. JUNO.

Epoch, 1839, Oct. 10·0 Mean Time at Greenwich.

| | | ° ′ ″ | |
|---|---|---|---|
| Mean Longitude of ⚵ - - - | $\varepsilon$ - - - | 33 12 21·2 | From Mean Equinox of Oct. 10, 1839. |
| Longitude of the Perihelion | $\varpi$ - - - | 54 14 20·2 | |
| Longitude of Ascending Node | $\nu$ - - - | 170 55 56·9 | |
| Inclination of the Orbit - - | $i$ - - - | 13 2 34·8 | |
| Angle of Excentricity - - - | $\phi$ - - - | 14 52 31·2 | |
| Mean daily Sidereal Motion | $n$ - - - | 813″·92074 | |

8 1839, Oct. 12, $1^h\ 32^m\ 8^s$ Mean Time at Greenwich.

II. PALLAS.

Epoch, 1839, April 3·0 Mean Time at Greenwich.

| | | ° ′ ″ | |
|---|---|---|---|
| Mean Longitude of ⚴ - - - | $\varepsilon$ - - - | 170 17 42·1 | From Mean Equinox of April 3, 1839. |
| Longitude of the Perihelion | $\varpi$ - - - | 121 47 10·9 | |
| Longitude of Ascending Node | $\nu$ - - - | 172 39 19·4 | |
| Inclination of the Orbit - - | $i$ - - - | 34 38 18·3 | |
| Angle of Excentricity - - | $\phi$ - - - | 13 51 20·6 | |
| Mean daily Sidereal Motion | $n$ - - - | 768″·16643 | |

8 1839, March 31, $19^h\ 10^m\ 13^s$ Mean Time at Greenwich.

III. CERES.

Epoch, 1839, April 3·0 Mean Time at Greenwich.

| | | ° ′ ″ | |
|---|---|---|---|
| Mean Longitude of ⚳ - - - | $\varepsilon$ - - - | 188 53 41·7 | From Mean Equinox, of April 3, 1839. |
| Longitude of the Perihelion | $\varpi$ - - - | 149 49 49·4 | |
| Longitude of Ascending Node | $\nu$ - - - | 80 45 35·1 | |
| Inclination of the Orbit - - | $i$ - - - | 10 36 45·1 | |
| Angle of Excentricity - - - | $\phi$ - - - | 4 34 17·4 | |
| Mean daily Sidereal Motion | $n$ - - - | 770″·51411 | |

8 1839, April 6, $7^h\ 7^m\ 32^s$ Mean Time at Greenwich.

With these Elements and their Variations for twenty-four days preceding and following their respective Epochs, the Places of these Planets at Mean Noon for the month preceding and following their Oppositions were obtained.

The Approximate Ephemeris for the year, of Vesta, was deduced from the Elements of 1838: for Juno, Pallas, and Ceres, the Elements of 1838 were used only to the Epochs of the above Elements, and these Elements for the remainder of the year.

The Semidiameters of the Planets, at the Mean Distance of the Earth from the Sun, have been adopted as follow:

| | | | | |
|---|---|---|---|---|
| Mercury, | Eq. Sem. | 3″·23 | (Lindenau's *Tables of Mercury*, page 38) |
| Venus, | Eq. Sem. | 8 ·25 | (Delambre's *Astronomy*, vol. ii. page 620) |
| Mars, | Eq. Sem. | 4 ·435 | (Littrow's *Astronomy*, vol. ii. page 389) |
| Jupiter, | Eq. Sem. | 99 ·704 | (*Mem. Ast. Soc.*, vol. iii. page 301) |
| Saturn, | Eq. Sem. | 81 ·106 | (Ast. Nach. N° 189) |
| Georgian, | Eq. Sem. | 37 ·25 | (Delambre's *Astronomy*, vol. ii. page 620) |

The Ephemeris of each of the Planets, Mercury, Venus, Mars, Jupiter, Saturn, and the Georgian, at the Time of Transit, has been computed for each day of the Year from their Places at Mean Noon. That of each of the Minor Planets, for one month preceding and following their respective Oppositions, from the accurate Noon Ephemeris.

The following are the Formulæ used in the construction of the Meridian Ephemeris:—

1. *Right Ascension and Declination at Transit.*

Let $\alpha$ denote the Right Ascension
$\delta$ ——— Declination } at Mean Noon.
S ——— Sidereal Time

$\Delta\alpha$, $\Delta\delta$, $\Delta$S } the Variations of $\alpha$, $\delta$, and S in the following 24 Hours.

$\Delta_2\alpha$, $\Delta_2\delta$ } the Mean Variations of $\Delta\alpha$ and $\Delta\delta$.

$t'$ the approximate Mean Time of Transit (given in the Ephemeris for Noon to the nearest tenth of a minute).

$t$ the Mean Time of Transit, expressed in decimals of a Mean Solar Day.

$\alpha_t$ the Right Ascension
$\delta_t$ the Declination } at the Mean Time of Transit.

Then
$$t=\left(\alpha+t'\cdot\frac{t'-1}{2}\,\Delta_2\alpha-\mathrm{S}\right)\frac{1}{\Delta\mathrm{S}-\Delta\alpha}$$
$$\alpha_t=\alpha+t'\cdot\frac{t'-1}{2}\,\Delta_2\alpha+t\,\Delta\alpha$$
$$\delta_t=\delta+t'\cdot\frac{t'-1}{2}\,\Delta_2\delta+t\,\Delta\delta$$

2. *Variation in* 1 *Hour of Longitude.*

Let $\alpha_0$, $\alpha_1$, $\alpha_2$, $\alpha_3$, and $\alpha_4$ be the Right Ascensions at five
Take the differences to the third order as follows

| | |
|---|---|
| $\alpha_0$ | |
| | $\Delta_0$ |
| $\alpha_1$ | |
| | $\Delta_1$ |
| $\alpha_2$ | |
| | $\Delta_2$ |
| $\alpha_3$ | |
| | $\Delta_3$ |
| $\alpha_4$ | |

Then $\frac{1}{48}\left(\Delta_1 + \Delta_2\right) - \frac{1}{288}\left(\delta_0 + \delta_1\right) =$ the hourly Variation at the instant for which $\alpha_2$ is given.

In a similar manner the hourly Variation of Declination is obtained from the Declinations at Transit.

3. *Semidiameter for Right Ascension.*

The Sidereal Time of the Semidiameter passing the Meridian $= \frac{\text{Equat. Semid.}}{15 \cos \delta}$ neglecting the motion of the Planet in that time, the effect on the time of passage of the Semidiameter being inappreciable.

The Eclipses of Jupiter's Satellites have been computed, in duplicate, from DELAMBRE's *Tables Écliptiques des Satellites de Jupiter, d'après la Théorie de M. le Marquis* DE LA PLACE *et la totalité des Observations faites depuis* 1662 *jusqu'à l'an* 1802 (Paris, 1817), using the corrected Epochs given in the NAUTICAL ALMANAC for the Year 1832, and a difference of Meridians $= 9^m\ 21^s$.

Since the calculations for 1839 were commenced, there has appeared "*Tables Écliptiques des Satellites de Jupiter, d'aprés la théorie de leurs attractions mutuelles et les constantes déduites des Observations.* Par le Baron Damoiseau. Publiées par le Bureau des Longitudes." Paris, 1836. These Tables have been adopted for the NAUTICAL ALMANAC for 1840.

The Latitude of Jupiter's Fourth Satellite being greater throughout the year than the Semidiameter of the Planet, the Satellite cannot be eclipsed by the shadow, occulted by the body, or transit the disc of Jupiter, and is therefore omitted in pages XX. and XXI. of each month.

For the Configurations and Occultations of the Satellites, as well as the Transits of the Satellites and their Shadows over the disc of the Planet, Mr. WOOLHOUSE's Tables in the APPENDIX to the NAUTICAL ALMANAC for 1835 have been used.

The Mean Places of the 100 Principal Fixed Stars for Jan. 1, 1839, together with the Annual Variations, have been derived from the fundamental Catalogue for 1830, contained in the *Second Edition* of the NAUTICAL ALMANAC for 1834, pages 362 to 367, by means of the Formulæ at page xiv of the PREFACE to that Volume.

The Logarithms of A, B, C, D, at page XXII. of each Month, have been computed agreeably to the Formulæ at page 435, omitting only in the Values of C and D, the terms $-0{\cdot}004 \sin 2 ☾$ and $-0''{\cdot}090 \cos 2 ☾$; and for the only Stars that can be sensibly affected by the omission, viz. the five Polar Stars, a Table of Corrections is given at pages 478 and 479.

The Table of Constants at pages 436 and 437 for facilitating the Reduction of Stars *generally*, has been computed from BESSEL's Formulæ, given at page 435, using the A, B, C, D, contained in this volume.

The apparent places of 95 of the principal Stars have been deduced from the Mean Places for January 1, 1839, using the Variables A, B, C, D in the present volume with

new constants computed for the year 1840, instead of the constants in the Astronomical Society's Catalogue for 1830. For the five Polar Stars the constants have been computed for 1839 and 1840, and interpolated. The corrections were computed independently for every tenth day, with the exception of those for $\alpha$ and $\delta$ URSÆ MINORIS, which were interpolated, with second differences, from computations made for every third day of the year.

A further correction of the right ascension for *daily* aberration is necessary, where extreme accuracy is required, and may be computed as follows: Let $\phi$ denote the latitude of the place, and $\delta$ the declination of the Star, then the correction (*in time*) for the *upper* transit is,

$$+ 0^{s}\cdot 0206 \cos \phi \sec \delta$$

and for the *lower* transit,

$$- 0^{s}\cdot 0206 \cos \phi \sec \delta$$

The Lists of Moon-Culminating Stars and Occultations have been selected from Mr. FRANCIS BAILY's Catalogue of Zodiacal Stars. (London, 1827.)

The Mean Places of the Stars for both Lists were taken in order of preference, 1. From the Catalogue of the 100 Stars in this Work. 2. From Mr. POND's printed Catalogue of 1112 Stars. 3. From the Astronomical Society's Catalogue. The reduction of the Mean to the Apparent Places has been performed by means of the Astronomical Society's Constants; the corrections for each star on the contiguous days being obtained by different computers for the Moon-Culminating List, and those for the Occultations by duplicate computations.

In the Moon-Culminating List for the previous Years, commencing with 1834, the Declination of the Moon has been given to the nearest minute only; in the present Volume it is given accurately to the tenth of a second, in order to render the Meridian Ephemeris of the principal heavenly bodies complete.

The calculations of the Elements of Occultations, the Occultations visible at Greenwich, and the Solar Eclipses, have been made in the manner described by Mr. WOOLHOUSE in the Appendix to the NAUTICAL ALMANAC for 1836: those relating to the Occultations in duplicate.

The Elements at page 549, for determining the appearance of Saturn's Ring, have been calculated by means of the formulæ at page viii of the NAUTICAL ALMANAC for 1836, adopting BESSEL's later determinations of the values of $\Omega$, $i$ and $a'$, viz.:—

$$\left.\begin{aligned} \Omega &= 166^\circ\ 53'\ \ 8''\cdot 9 + 46''\cdot 462\ (t - 1800) \\ i &= 28\ \ 10\ \ 44\ \cdot 7 - \ \ 0\ \cdot 350\ (t - 1800) \end{aligned}\right\} \textit{Ast. Nach} \quad \text{'74, col. 167.}$$

$$a' = 39''\cdot 308\ (\textit{Ast. Nach.}, \text{No. 275, col. 170}),$$

the mean distance of the Planet from the Sun being
BOUVARD's Tables of Saturn, instead of 9·5421889, th
reduction of his observations.

The Stars proper to be observed wi[illegible] Mars at
selected by Professor HENDERSON [illegible] of the Observat[illegible]

parent Places computed by means of the Constants of the Astronomical Society, and those at pages 436 and 437 of the present Volume.

The Ephemeris of GAMBART's Comet has been deduced from the following Elements of its Orbit, computed by Professor SANTINI (*Ast. Nach.*, vol. xii., page 114,), using a difference of meridians = $47^m\ 29^s{\cdot}2$ (N.A. 1839, page 573).

Perihelion Passage, July 23, 1839, at $0^d{\cdot}03907$, Mean Time at Padua.

| | | |
|---|---|---|
| Log. of Semi-axis Major - - - - - - | 0·5483436 | |
| Angle of Excentricity - - - - - - - - | 48° 43′ 16″·80 | |
| Inclination of the Orbit - - - - - - - | 13 12 24 ·49 | |
| Longitude of the Node - - - - - - - - | 110 6 16 ·33 | from Mean Equinox July 23, 1839 |
| Longitude of the Perihelion - - - - - | 248 13 18 ·59 | from Mean Equinox July 23, 1839 |
| Mean Daily Sidereal Motion - - - - | 533″·938407 | |

Motion Direct.

The Tides at London Bridge for the year 1839 have been computed from MS. Tables founded upon Mr. LUBBOCK's principal Table III, given at page 401 of the *Philosophical Transactions* for 1831. This Table, as well as Table XV at page 412, which contains the corrections for each Month, has been entirely reconstructed, by adapting the equations for each month to their proper argument, *apparent time*, and eliminating from the latter the corrections due to the Moon's Parallax and Declination, by means of Mr. LUBBOCK's Tables XVII and XIX.

The Tables for finding the Latitude of a place by Observations of the Pole Star ($\alpha$ Ursæ Minoris), at any hour of the day, are similar to those published annually by Professor SCHUMACHER in his Ephemeris of the Planetary Distances, and are founded on the following formula:

$$l = a - p\cos h + \tfrac{1}{2}\sin 1''\,(p\sin h)^2 \tan a$$

where $l$ denotes the latitude

$a$ —— the true altitude of the Star

$p$ —— the apparent polar distance, expressed in seconds of arc

$h$ —— the hour angle of the Star $= S - \alpha$; S being the sidereal time of observation, and $\alpha$ the right ascension of the Star.

Table I contains the value of the *second* term ($p \cos h$) or the *first correction*; assuming, as *mean* values, $p = 93'\ 6''$, and $\alpha = 15°\ 27'$.

Table II contains the value of the *third* term ($\frac{1}{2}\sin 1''\,(p \sin h)^2 \tan a$) or the *second correction*, using the same *mean* quantities as in Table I.

Table III, which is *special* for the year 1839, and depends upon the difference between the true and assumed values of $p$ and $\alpha$, contains the *third* correction increased by $1'$ for the purpose of rendering the quantities additive.

A fourth term ($-\frac{1}{3}\sin^2 1''\,(p\cos h)\,(p\sin h)^2$) is omitted, its greatest value being only $0''{\cdot}55$.

In the construction of this Ephemeris generally, duplicate computations have been made where necessary, and independent calculations performed to guard against errors in principle, and all results finally examined by means of differences.

W. S. STRATFORD, Lieut. R.N.,
Superintendent of the Nautical Almanac.

*Nautical Almanac Office, Somerset House,*
*Aug.* 24, 1837.

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*** *The Supplement to the Nautical Almanac for* 1838, *containing the Meridian Ephemeris of the Planets, will be published immediately. The Nautical Almanac for* 1840 *will be published in the month of December next: and the Nautical Almanac for* 1841 *in the month of March,* 1838.

# PRINCIPAL ARTICLES OF THE CALENDAR,

## For the Year 1839.

| | | | |
|---|---|---|---|
| Golden Number | 16 | Dominical Letter | F |
| Epact | 15 | Roman Indiction | 12 |
| Solar Cycle | 28 | Julian Period | 6552 |

# FIXED AND MOVEABLE FESTIVALS, ANNIVERSARIES,

*&c., &c.*

| | | | | | |
|---|---|---|---|---|---|
| Epiphany | Jan. | 6 | *Pentecost—Whit Sunday* | May | 19 |
| *Septuagesima Sunday* | | 27 | Birth of Q. Victoria | | 24 |
| Martyrdom of K. Charles I. | | 30 | *Trinity Sunday* | | 26 |
| *Quinquagesima—Shrove Sunday* | Feb. | 10 | Restoration of K. Charles II. | | 29 |
| *Ash Wednesday* | | 13 | *Corpus Christi* | | 30 |
| *Quadragesima—1st Sunday in Lent* | | 17 | Accession of Q. Victoria | June | 20 |
| St. David | Mar. | 1 | Proclamation | | 21 |
| St. Patrick | | 17 | St. John Bapt.—Midsmr Day | | 24 |
| *Palm Sunday* | | 24 | Birth of Dowager Q. Adelaide | Aug. | 13 |
| Annunciation—Lady Day | | 25 | St. Michael—Michaelmas Day | Sept. | 29 |
| *Good Friday* | | 29 | Gunpowder Plot | Nov. | 5 |
| *EASTER SUNDAY* | | 31 | St. Andrew | | 30 |
| *Low Sunday* | Apr. | 7 | *1st Sunday in Advent* | Dec. | 1 |
| St. George | | 23 | St. Thomas | | 21 |
| *Rogation Sunday* | May | 5 | Christmas Day | | 25 |
| *Ascension Day—Holy Thursday* | | 9 | | | |

The Year 5600 of the Jewish Era commences on September 9, 1839.

The Year 1255 of the Mohammedan Era commences on March 17, 1839.

Ramadân (Month of Abstinence observed by the Turks) commences on November 8, 1839.

# EXPLANATION OF
# ASTRONOMICAL SYMBOLS AND ABBREVIATIONS.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ☉ | The Sun. | ☌ | Conjunction. | 0. | ♈ | Aries. - - | 0° |
| ☾ | The Moon. | □ | Quadrature. | I. | ♉ | Taurus. - | 30 |
| ☿ | Mercury. | ☍ | Opposition. | II. | ♊ | Gemini. - | 60 |
| ♀ | Venus. | ☊ | Ascending Node. | III. | ♋ | Cancer. - | 90 |
| ⊖ or ♁ | The Earth. | ☋ | Descending Node. | IV. | ♌ | Leo. - - - | 120 |
| ♂ | Mars. | N. | North. S. South. | V. | ♍ | Virgo. - - | 150 |
| ⚶ | Vesta. | E. | East. W. West. | VI. | ♎ | Libra. - - | 180 |
| ⚵ | Juno. | ° | Degrees. | VII. | ♏ | Scorpio. - | 210 |
| ⚴ | Pallas. | ′ | Minutes of Arc. | VIII. | ♐ | Sagittarius. | 240 |
| ⚳ | Ceres. | ″ | Seconds of Arc. | IX. | ♑ | Capricornus. | 270 |
| ♃ | Jupiter. | h | Hours. | X. | ♒ | Aquarius. - | 300 |
| ♄ | Saturn. | m | Minutes of Time. | XI. | ♓ | Pisces. - - | 330 |
| ♅ | The Georgian. | s | Seconds of Time. | | | | |

## LAW TERMS, 1839.

As settled by Statutes 1 WILL. IV. { cap. 70, s. 6. (Passed July 23, 1830.)
cap. 3, s. 2. (Passed Dec. 23, 1830.)

| | | |
|---|---|---|
| HILARY TERM - - - - | *Begins* Jan. 11 | *Ends* Jan. 31 |
| EASTER - - - - - - - - - - - | Apr. 15 | - - May 8 |
| TRINITY - - - - - - - - - - - | May 22 | - - June 12 |
| MICHAELMAS - - - - - - - - - | Nov. 2 | - - Nov. 25 |

For Returns see Statute 1 WILL. IV. cap. 3, s. 2. (Passed Dec. 23, 1830.)

## UNIVERSITY TERMS, 1839.

| Names. | OXFORD. | | CAMBRIDGE. | | |
|---|---|---|---|---|---|
| | *Begins.* | *Ends.* | *Begins.* | *Divides.* | *Ends.* |
| Lent - - - | Jan. 14 | Mar. 23 | Jan. 13 | Feb. [illegible] | Mar. 22 |
| Easter - - | April 10 | May 18 | April 10 | May [illegible] | July 5 |
| Trinity - - | May 22 | July 6 | - - - | - | - - - |
| Michaelmas - | Oct. 10 | Dec. 17 | Oct. 10 | Nov. [illegible] | Dec. 16 |
| | *The Act*, July 2. | | *The Comm*[illegible] | | |

# EPHEMERIS

FOR THE YEAR

# 1839,

FOR THE MERIDIAN

OF THE

## ROYAL OBSERVATORY AT GREENWICH.

## AT APPARENT NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | Diff. for 1 hour. | THE SUN'S Apparent Declination. | Diff. for 1 hour. | Sidereal Time of the Semidiam. passing the Meridian.* | Equation of Time, *to be added to Apparent Time.* | Diff. for 1 hou |
|---|---|---|---|---|---|---|---|---|
| | | h m s | s | ° ′ ″ | ″ | m s | m s | s |
| Tues. | 1 | 18 45 32 ·52 | 11 ·037 | S. 23 2 58 ·0 | 12 ·59 | 1 11 ·00 | 3 43 ·29 | 1 ·17 |
| Wed. | 2 | 18 49 57 ·38 | 11 ·023 | 22 57 55 ·8 | 13 ·73 | 1 10 ·96 | 4 11 ·52 | 1 ·16 |
| Thur. | 3 | 18 54 21 ·92 | 11 ·007 | 22 52 26 ·3 | 14 ·87 | 1 10 ·91 | 4 39 ·43 | 1 ·15 |
| Frid. | 4 | 18 58 46 ·09 | 10 ·990 | 22 46 29 ·5 | 16 ·00 | 1 10 ·86 | 5 6 ·97 | 1 ·13 |
| Sat. | 5 | 19 3 9 ·86 | 10 ·973 | 22 40 5 ·6 | 17 ·12 | 1 10 ·80 | 5 34 ·12 | 1 ·11 |
| *Sun.* | 6 | 19 7 33 ·22 | 10 ·955 | 22 33 14 ·7 | 18 ·24 | 1 10 ·74 | 6 0 ·84 | 1 ·05 |
| Mon. | 7 | 19 11 56 ·14 | 10 ·935 | 22 25 57 ·0 | 19 ·35 | 1 10 ·67 | 6 27 ·13 | 1 ·07 |
| Tues. | 8 | 19 16 18 ·57 | 10 ·914 | 22 18 12 ·7 | 20 ·44 | 1 10 ·60 | 6 52 ·94 | 1 ·03 |
| Wed. | 9 | 19 20 40 ·51 | 10 ·892 | 22 10 2 ·1 | 21 ·53 | 1 10 ·53 | 7 18 ·25 | 1 ·03 |
| Thur. | 10 | 19 25 1 ·93 | 10 ·870 | 22 1 25 ·4 | 22 ·61 | 1 10 ·45 | 7 43 ·04 | 1 ·01 |
| Frid. | 11 | 19 29 22 ·80 | 10 ·846 | 21 52 22 ·8 | 23 ·67 | 1 10 ·37 | 8 7 ·28 | 0 ·98 |
| Sat. | 12 | 19 33 43 ·10 | 10 ·821 | 21 42 54 ·6 | 24 ·73 | 1 10 ·29 | 8 30 ·96 | 0 ·96 |
| *Sun.* | 13 | 19 38 2 ·80 | 10 ·794 | 21 33 1 ·0 | 25 ·77 | 1 10 ·21 | 8 54 ·03 | 0 ·93 |
| Mon. | 14 | 19 42 21 ·85 | 10 ·767 | 21 22 42 ·5 | 26 ·80 | 1 10 ·12 | 9 16 ·46 | 0 ·90 |
| Tues. | 15 | 19 46 40 ·25 | 10 ·739 | 21 11 59 ·3 | 27 ·82 | 1 10 ·03 | 9 38 ·24 | 0 ·88 |
| Wed. | 16 | 19 50 57 ·98 | 10 ·709 | 21 0 51 ·6 | 28 ·82 | 1 9 ·94 | 9 59 ·35 | 0 ·85 |
| Thur. | 17 | 19 55 15 ·00 | 10 ·679 | 20 49 19 ·9 | 29 ·81 | 1 9 ·84 | 10 19 ·76 | 0 ·82 |
| Frid. | 18 | 19 59 31 ·30 | 10 ·648 | 20 37 24 ·5 | 30 ·79 | 1 9 ·74 | 10 39 ·45 | 0 ·78 |
| Sat. | 19 | 20 3 46 ·85 | 10 ·617 | 20 25 5 ·6 | 31 ·75 | 1 9 ·64 | 10 58 ·39 | 0 ·75 |
| *Sun.* | 20 | 20 8 1 ·65 | 10 ·584 | 20 12 23 ·7 | 32 ·69 | 1 9 ·54 | 11 16 ·59 | 0 ·72 |
| Mon. | 21 | 20 12 15 ·67 | 10 ·552 | 19 59 19 ·2 | 33 ·62 | 1 9 ·44 | 11 34 ·01 | 0 ·69 |
| Tues. | 22 | 20 16 28 ·92 | 10 ·519 | 19 45 52 ·3 | 34 ·54 | 1 9 ·34 | 11 50 ·66 | 0 ·66 |
| Wed. | 23 | 20 20 41 ·37 | 10 ·485 | 19 32 3 ·4 | 35 ·43 | 1 9 ·23 | 12 6 ·51 | 0 ·62 |
| Thur. | 24 | 20 24 53 ·01 | 10 ·451 | 19 17 53 ·0 | 36 ·32 | 1 9 ·12 | 12 21 ·55 | 0 ·59 |
| Frid. | 25 | 20 29 3 ·83 | 10 ·417 | 19 3 21 ·4 | 37 ·18 | 1 9 ·01 | 12 35 ·77 | 0 ·55 |
| Sat. | 26 | 20 33 13 ·84 | 10 ·383 | 18 48 29 ·1 | 38 ·03 | 1 8 ·90 | 12 49 ·18 | 0 ·52 |
| *Sun.* | 27 | 20 37 23 ·02 | 10 ·349 | 18 33 16 ·3 | 38 ·87 | 1 8 ·79 | 13 1 ·77 | 0 ·49 |
| Mon. | 28 | 20 41 31 ·39 | 10 ·315 | 18 17 43 ·5 | 39 ·69 | 1 8 ·68 | 13 13 ·54 | 0 ·45 |
| Tues. | 29 | 20 45 38 ·93 | 10 ·280 | 18 1 51 ·0 | 40 ·49 | 1 8 ·57 | 13 24 ·48 | 0 ·42 |
| Wed. | 30 | 20 49 45 ·64 | 10 ·245 | 17 45 39 ·3 | 41 ·28 | 1 8 ·45 | 13 34 ·61 | 0 ·38 |
| Thur. | 31 | 20 53 51 ·53 | 10 ·211 | 17 29 8 ·6 | 42 ·05 | 1 8 ·33 | 13 43 ·92 | 0 ·35 |
| Frid. | 32 | 20 57 56 ·59 | | S. 17 12 19 ·4 | | 1 8 ·22 | 13 52 ·41 | |

* *Mean* Time of the Semidiameter passing may be found by subtracting 0s·19 from the *Sidereal* Time

## AT MEAN NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | THE SUN'S Apparent Declination. | THE SUN'S Semidiam.* | Equation of Time, *to be subtracted from Mean Time.* | Sidereal Time. |
|---|---|---|---|---|---|---|
| | | h m s | ° ′ ″ | ′ ″ | m s | h m s |
| es. | 1 | 18 45 31 ·83 | S. 23 2 58 ·7 | 16 17 ·3 | 3 43 ·22 | 18 41 48 ·61 |
| ed. | 2 | 18 49 56 ·61 | 22 57 56 ·8 | 16 17 ·3 | 4 11 ·44 | 18 45 45 ·17 |
| ur. | 3 | 18 54 21 ·06 | 22 52 27 ·4 | 16 17 ·3 | 4 39 ·33 | 18 49 41 ·73 |
| id. | 4 | 18 58 45 ·15 | 22 46 30 ·8 | 16 17 ·3 | 5 6 ·86 | 18 53 38 ·29 |
| t. | 5 | 19 3 8 ·85 | 22 40 7 ·1 | 16 17 ·2 | 5 34 ·01 | 18 57 34 ·84 |
| n. | 6 | 19 7 32 ·13 | 22 33 16 ·4 | 16 17 ·2 | 6 0 ·73 | 19 1 31 ·40 |
| n. | 7 | 19 11 54 ·96 | 22 25 59 ·0 | 16 17 ·2 | 6 27 ·01 | 19 5 27 ·95 |
| es. | 8 | 19 16 17 ·32 | 22 18 15 ·0 | 16 17 ·1 | 6 52 ·82 | 19 9 24 ·50 |
| ed. | 9 | 19 20 39 ·18 | 22 10 4 ·7 | 16 17 ·1 | 7 18 ·12 | 19 13 21 ·06 |
| ur. | 10 | 19 25 0 ·53 | 22 1 28 ·2 | 16 17 ·0 | 7 42 ·91 | 19 17 17 ·62 |
| id. | 11 | 19 29 21 ·33 | 21 52 25 ·9 | 16 17 ·0 | 8 7 ·15 | 19 21 14 ·18 |
| t. | 12 | 19 33 41 ·56 | 21 42 58 ·0 | 16 16 ·9 | 8 30 ·82 | 19 25 10 ·74 |
| n. | 13 | 19 38 1 ·19 | 21 33 4 ·8 | 16 16 ·8 | 8 53 ·89 | 19 29 7 ·30 |
| n. | 14 | 19 42 20 ·18 | 21 22 46 ·6 | 16 16 ·8 | 9 16 ·31 | 19 33 3 ·87 |
| es. | 15 | 19 46 38 ·52 | 21 12 3 ·7 | 16 16 ·7 | 9 38 ·09 | 19 37 0 ·43 |
| ed. | 16 | 19 50 56 ·19 | 21 0 56 ·3 | 16 16 ·6 | 9 59 ·20 | 19 40 56 ·99 |
| ur. | 17 | 19 55 13 ·16 | 20 49 24 ·9 | 16 16 ·6 | 10 19 ·61 | 19 44 53 ·55 |
| id. | 18 | 19 59 29 ·41 | 20 37 29 ·8 | 16 16 ·5 | 10 39 ·31 | 19 48 50 ·10 |
| t. | 19 | 20 3 44 ·91 | 20 25 11 ·3 | 16 16 ·4 | 10 58 ·25 | 19 52 46 ·66 |
| n. | 20 | 20 7 59 ·66 | 20 12 29 ·8 | 16 16 ·3 | 11 16 ·45 | 19 56 43 ·21 |
| n. | 21 | 20 12 13 ·64 | 19 59 25 ·5 | 16 16 ·2 | 11 33 ·88 | 20 0 39 ·76 |
| es. | 22 | 20 16 26 ·84 | 19 45 59 ·0 | 16 16 ·1 | 11 50 ·53 | 20 4 36 ·31 |
| ed. | 23 | 20 20 39 ·24 | 19 32 10 ·5 | 16 16 ·0 | 12 6 ·37 | 20 8 32 ·87 |
| ur. | 24 | 20 24 50 ·85 | 19 18 0 ·4 | 16 15 ·9 | 12 21 ·42 | 20 12 29 ·43 |
| d. | 25 | 20 29 1 ·64 | 19 3 29 ·1 | 16 15 ·8 | 12 35 ·65 | 20 16 25 ·99 |
| . | 26 | 20 33 11 ·62 | 18 48 37 ·1 | 16 15 ·7 | 12 49 ·07 | 20 20 22 ·55 |
| n. | 27 | 20 37 20 ·77 | 18 33 2 | 16 15 ·6 | 13 1 ·65 | 20 24 19 ·12 |
| n. | 28 | 20 41 29 ·11 | 18 17 | 16 15 ·5 | 13 13 ·43 | 20 28 15 ·68 |
| es. | 29 | 20 45 36 ·6 | | 16 15 ·3 | 13 24 ·38 | 20 32 12 ·24 |
| d. | 30 | 20 49 | | ·2 | 13 34 ·51 | 20 36 8 ·80 |
| ur. | 31 | 20 53 | | | 13 43 ·84 | 20 40 5 ·35 |
| d. | 32 | 20 57 | | | | 20 44 1 ·90 |

* The Semid

Noon.

## MEAN TIME.

| Day of the Month. | THE SUN'S *Apparent* Longitude. *Noon.* | THE SUN'S *Apparent* Latitude. *Noon.* | Logarithm of the Radius Vector of the Earth. *Noon.* | THE MOON'S Semidiameter. *Noon.* | THE MOON'S Semidiameter. *Midnight.* | THE MOON'S Horizontal Parallax. *Noon.* | THE MOON'S Horizontal Parallax. *Midnigh* |
|---|---|---|---|---|---|---|---|
| | ° ′ ″ | ″ | | ′ ″ | ′ ″ | ′ ″ | ′ ″ |
| 1 | 280 27 47·4 | N.0·56 | 9·9926542 | 15 29·2 | 15 23·7 | 56 49·8 | 56 29 |
| 2 | 281 28 55·8 | 0·49 | 9·9926569 | 15 18·4 | 15 13·1 | 56 10·2 | 55 50 |
| 3 | 282 30 4·2 | 0·39 | 9·9926625 | 15 8·2 | 15 3·5 | 55 32·8 | 55 15 |
| 4 | 283 31 12·7 | 0·27 | 9·9926708 | 14 59·3 | 14 55·6 | 55 0·1 | 54 46 |
| 5 | 284 32 21·2 | 0·14 | 9·9926819 | 14 52·4 | 14 49·8 | 54 34·7 | 54 25 |
| 6 | 285 33 29·9 | N.0·01 | 9·9926954 | 14 47·8 | 14 46·6 | 54 18·0 | 54 13 |
| 7 | 286 34 38·6 | S.0·13 | 9·9927114 | 14 46·0 | 14 46·2 | 54 11·5 | 54 12 |
| 8 | 287 35 47·3 | 0·26 | 9·9927296 | 14 47·2 | 14 48·8 | 54 15·8 | 54 21 |
| 9 | 288 36 56·1 | 0·38 | 9·9927500 | 14 51·2 | 14 54·3 | 54 30·5 | 54 41 |
| 10 | 289 38 5·0 | 0·48 | 9·9927724 | 14 57·9 | 15 2·1 | 54 55·2 | 55 10 |
| 11 | 290 39 13·7 | 0·55 | 9·9927967 | 15 6·9 | 15 12·1 | 55 28·0 | 55 47 |
| 12 | 291 40 22·3 | 0·59 | 9·9928228 | 15 17·5 | 15 23·2 | 56 7·0 | 56 27 |
| 13 | 292 41 30·7 | 0·61 | 9·9928505 | 15 29·0 | 15 34·8 | 56 49·1 | 57 10 |
| 14 | 293 42 38·6 | 0·60 | 9·9928799 | 15 40·5 | 15 45·9 | 57 31·3 | 57 51 |
| 15 | 294 43 46·0 | 0·56 | 9·9929110 | 15 51·1 | 15 55·9 | 58 10·3 | 58 27 |
| 16 | 295 44 52·9 | 0·49 | 9·9929436 | 16 0·1 | 16 3·6 | 58 43·1 | 58 56 |
| 17 | 296 45 59·1 | 0·39 | 9·9929777 | 16 6·7 | 16 9·1 | 59 7·4 | 59 16 |
| 18 | 297 47 4·5 | 0·28 | 9·9930135 | 16 10·8 | 16 11·9 | 59 22·4 | 59 26 |
| 19 | 298 48 9·0 | 0·15 | 9·9930510 | 16 12·4 | 16 12·3 | 59 28·3 | 59 28 |
| 20 | 299 49 12·6 | S.0·02 | 9·9930902 | 16 11·7 | 16 10·7 | 59 26·0 | 59 22 |
| 21 | 300 50 15·2 | N.0·11 | 9·9931313 | 16 9·4 | 16 7·7 | 59 17·4 | 59 11 |
| 22 | 301 51 16·8 | 0·22 | 9·9931744 | 16 5·8 | 16 3·6 | 59 4·2 | 58 56 |
| 23 | 302 52 17·4 | 0·32 | 9·9932196 | 16 1·1 | 15 58·5 | 58 47·1 | 58 37 |
| 24 | 303 53 16·9 | 0·40 | 9·9932670 | 15 55·7 | 15 52·8 | 58 27·2 | 58 16 |
| 25 | 304 54 15·2 | 0·45 | 9·9933167 | 15 49·6 | 15 46·2 | 58 4·6 | 57 52 |
| 26 | 305 55 12·4 | 0·47 | 9·9933687 | 15 42·7 | 15 38·9 | 57 39·3 | 57 25 |
| 27 | 306 56 8·5 | 0·47 | 9·9934232 | 15 35·0 | 15 30·9 | 57 11·2 | 56 56 |
| 28 | 307 57 3·5 | 0·44 | 9·9934802 | 15 26·8 | 15 22·6 | 56 41·2 | 56 25 |
| 29 | 308 57 57·4 | 0·38 | 9·9935398 | 15 18·4 | 15 14·2 | 56 10·2 | 55 54 |
| 30 | 309 58 50·2 | 0·29 | 9·9936021 | 15 10·0 | 15 6·0 | 55 39·3 | 55 24 |
| 31 | 310 59 42·0 | 0·18 | 9·9936668 | 15 2·1 | 14 58·6 | 55 10·6 | 54 57 |
| 32 | 312 0 32·7 | N.0·05 | 9·9937340 | 14 55·3 | 14 52·4 | 54 45·4 | 54 34 |

## MEAN TIME.

| Day of the Week. | Day of the Month. | THE MOON'S Longitude. Noon. | Longitude. Midnight. | Latitude. Noon. | Latitude. Midnight. | Age. Noon. | Meridian Passage. |
|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | ° ′ ″ | ° ′ ″ | ° ′ ″ | d | h m |
| Tues. | 1 | 118 44 13·1 | 125 16 26·4 | N.4 19 25·4 | N.4 0 20·2 | 15·5 | 13 54·9 |
| Wed. | 2 | 131 43 29·1 | 138 5 23·6 | 3 38 22·2 | 3 13 54·5 | 16·5 | 14 43·7 |
| Thur. | 3 | 144 22 21·4 | 150 34 38·0 | 2 47 20·6 | 2 19 4·3 | 17·5 | 15 28·3 |
| Frid. | 4 | 156 42 37·0 | 162 46 45·3 | 1 49 27·5 | 1 18 51·7 | 18·5 | 16 9·8 |
| Sat. | 5 | 168 47 35·3 | 174 45 41·3 | N.0 47 37·4 | N.0 16 3·8 | 19·5 | 16 49·3 |
| *Sun.* | 6 | 180 41 42·2 | 186 36 16·7 | S.0 15 31·1 | S.0 46 49·0 | 20·5 | 17 28·2 |
| Mon. | 7 | 192 30 7·3 | 198 23 54·8 | 1 17 33·7 | 1 47 28·1 | 21·5 | 18 7·6 |
| Tues. | 8 | 204 18 22·3 | 210 14 10·8 | 2 16 16·6 | 2 43 42·8 | 22·5 | 18 48·8 |
| Wed. | 9 | 216 12 0·7 | 222 12 30·4 | 3 9 30·8 | 3 33 23·2 | 23·5 | 19 33·0 |
| Thur. | 10 | 228 16 16·2 | 234 23 51·2 | 3 55 3·8 | 4 14 15·4 | 24·5 | 20 21·0 |
| Frid. | 11 | 240 35 43·4 | 246 52 17·1 | 4 30 40·5 | 4 44 2·3 | 25·5 | 21 13·3 |
| Sat. | 12 | 253 13 50·9 | 259 40 36·4 | 4 54 3·9 | 5 0 30·4 | 26·5 | 22 9·4 |
| *Sun.* | 13 | 266 12 39·1 | 272 49 57·5 | 5 3 7·0 | 5 1 42·5 | 27·5 | 23 8·0 |
| Mon. | 14 | 279 32 22·6 | 286 19 38·2 | 4 56 8·5 | 4 46 20·7 | 28·5 | ♂ |
| Tues. | 15 | 293 11 22·2 | 300 7 6·9 | 4 32 18·2 | 4 14 6·7 | 29·5 | 0 6·8 |
| Wed. | 16 | 307 6 20·9 | 314 8 27·8 | 3 51 56·3 | 3 26 4·0 | 0·9 | 1 3·7 |
| Thur. | 17 | 321 12 52·7 | 328 18 59·1 | 2 56 50·5 | 2 24 42·9 | 1·9 | 1 57·6 |
| Frid. | 18 | 335 26 12·5 | 342 34 1·3 | 1 50 11·7 | S.1 13 51·6 | 2·9 | 2 48·6 |
| Sat. | 19 | 349 41 57·1 | 356 49 35·7 | S.0 36 18·2 | N.0 1 50·0 | 3·9 | 3 37·4 |
| *Sun.* | 20 | 3 56 38·1 | 11 2 47·7 | N.0 39 55·6 | 1 17 20·1 | 4·9 | 4 25·2 |
| Mon. | 21 | 18 7 52·3 | 25 11 42·6 | 1 53 28·3 | 2 27 46·1 | 5·9 | 5 13·6 |
| Tues. | 22 | 32 14 11·6 | 39 15 12·3 | 2 59 42·0 | 3 28 48·3 | 6·9 | 6 3·8 |
| Wed. | 23 | 46 14 39·0 | 53 12 25·5 | 3 54 39·5 | 4 16 54·9 | 7·9 | 6 56·9 |
| Thur. | 24 | 60 8 24·2 | 67 2 26·9 | 4 35 17·1 | 4 49 33·2 | 8·9 | 7 53·2 |
| Frid. | 25 | 73 54 23·8 | 80 44 3·1 | 4 59 34·0 | 5 5 15·0 | 9·9 | 8 52·2 |
| Sat. | 26 | 87 31 12·4 | 94 15 38·0 | 5 6 35·3 | 5 3 39·1 | 10·9 | 9 51·9 |
| *Sun.* | 27 | 100 57 6·4 | 107 35 23·6 | 4 56 33·5 | 4 45 30·1 | | 50·1 |
| Mon. | 28 | 114 10 17·2 | 120 41 36·1 | 4 30 42·6 | | | |
| Tues. | 29 | 127 9 12·2 | 133 32 58·4 | 3 51 9·9 | | | |
| Wed. | 30 | 139 52 53·4 | 146 8 58·0 | 3 0 [illegible] | | | |
| Thur. | 31 | 152 21 19·0 | 158 30 6·1 | 2 2 | | | |
| Frid. | 32 | 164 35 33·5 | 170 37 59·4 | N.0 5 | | | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 1. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 8 7 21 ·52 | N.24 39 46 ·3 | 84 ·00 |
| 1 | 8 9 41 ·10 | 24 31 22 ·3 | 85 ·27 |
| 2 | 8 12 0 ·22 | 24 22 50 ·7 | 86 ·48 |
| 3 | 8 14 18 ·89 | 24 14 11 ·8 | 87 ·72 |
| 4 | 8 16 37 ·10 | 24 5 25 ·5 | 88 ·92 |
| 5 | 8 18 54 ·84 | 23 56 32 ·0 | 90 ·10 |
| 6 | 8 21 12 ·13 | 23 47 31 ·4 | 91 ·27 |
| 7 | 8 23 28 ·96 | 23 38 23 ·8 | 92 ·43 |
| 8 | 8 25 45 ·32 | 23 29 9 ·2 | 93 ·57 |
| 9 | 8 28 1 ·23 | 23 19 47 ·8 | 94 ·68 |
| 10 | 8 30 16 ·67 | 23 10 19 ·7 | 95 ·80 |
| 11 | 8 32 31 ·65 | 23 0 44 ·9 | 96 ·90 |
| 12 | 8 34 46 ·17 | 22 51 3 ·5 | 97 ·97 |
| 13 | 8 37 0 ·23 | 22 41 15 ·7 | 99 ·03 |
| 14 | 8 39 13 ·83 | 22 31 21 ·5 | 100 ·07 |
| 15 | 8 41 26 ·97 | 22 21 21 ·1 | 101 ·10 |
| 16 | 8 43 39 ·65 | 22 11 14 ·5 | 102 ·12 |
| 17 | 8 45 51 ·88 | 22 1 1 ·8 | 103 ·12 |
| 18 | 8 48 3 ·64 | 21 50 43 ·1 | 104 ·10 |
| 19 | 8 50 14 ·95 | 21 40 18 ·5 | 105 ·07 |
| 20 | 8 52 25 ·81 | 21 29 48 ·1 | 106 ·02 |
| 21 | 8 54 36 ·21 | 21 19 12 ·0 | 106 ·95 |
| 22 | 8 56 46 ·16 | 21 8 30 ·3 | 107 ·87 |
| 23 | 8 58 55 ·67 | N.20 57 43 ·1 | 108 ·78 |
| | *WEDNESDAY* 2. | | |
| 0 | 9 1 4 ·72 | N.20 46 50 ·4 | 109 ·67 |
| 1 | 9 3 13 ·33 | 20 35 52 ·4 | 110 ·55 |
| 2 | 9 5 21 ·49 | 20 24 49 ·1 | 111 ·40 |
| 3 | 9 7 29 ·22 | 20 13 40 ·7 | 112 ·25 |
| 4 | 9 9 36 ·50 | 20 2 27 ·2 | 113 ·08 |
| 5 | 9 11 43 ·35 | 19 51 8 ·7 | 113 ·90 |
| 6 | 9 13 49 ·76 | 19 39 45 ·3 | 114 ·72 |
| 7 | 9 15 55 ·75 | 19 28 17 ·0 | 115 ·48 |
| 8 | 9 18 1 ·31 | 19 16 44 ·1 | 116 ·28 |
| 9 | 9 20 6 ·44 | 19 5 6 ·4 | 117 ·03 |
| 10 | 9 22 11 ·15 | 18 53 24 ·2 | 117 ·77 |
| 11 | 9 24 15 ·44 | 18 41 37 ·6 | 118 ·52 |
| 12 | 9 26 19 ·31 | 18 29 46 ·5 | 119 ·23 |
| 13 | 9 28 22 ·77 | 18 17 51 ·1 | 119 ·93 |
| 14 | 9 30 25 ·83 | 18 5 51 ·5 | 120 ·63 |
| 15 | 9 32 28 ·47 | 17 53 47 ·7 | 121 ·32 |
| 16 | 9 34 30 ·72 | 17 41 39 ·8 | 121 ·97 |
| 17 | 9 36 32 ·56 | 17 29 28 ·0 | 122 ·63 |
| 18 | 9 38 34 ·01 | 17 17 12 ·2 | 123 ·27 |
| 19 | 9 40 35 ·07 | 17 4 52 ·6 | 123 ·88 |
| 20 | 9 42 35 ·74 | 16 52 29 ·3 | 124 ·50 |
| 21 | 9 44 36 ·03 | 16 40 2 ·3 | 125 ·12 |
| 22 | 9 46 35 ·94 | 16 27 31 ·6 | 125 ·68 |
| 23 | 9 48 35 ·47 | 16 14 57 ·5 | 126 ·27 |
| 24 | 9 50 34 ·62 | N.16 2 19 ·9 | |

| Hour. | Right Ascension. | Declination. | Diff. D for 1 |
|---|---|---|---|
| | *THURSDAY* 3. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 9 50 34 ·62 | N.16 2 19 ·9 | 126 · |
| 1 | 9 52 33 ·41 | 15 49 39 ·0 | 127 · |
| 2 | 9 54 31 ·83 | 15 36 54 ·7 | 127 · |
| 3 | 9 56 29 ·89 | 15 24 7 ·2 | 128 · |
| 4 | 9 58 27 ·60 | 15 11 16 ·6 | 128 · |
| 5 | 10 0 24 ·95 | 14 58 22 ·9 | 129 · |
| 6 | 10 2 21 ·96 | 14 45 26 ·2 | 129 · |
| 7 | 10 4 18 ·62 | 14 32 26 ·5 | 130 · |
| 8 | 10 6 14 ·94 | 14 19 23 ·9 | 130 · |
| 9 | 10 8 10 ·92 | 14 6 18 ·5 | 131 · |
| 10 | 10 10 6 ·58 | 13 53 10 ·4 | 131 · |
| 11 | 10 12 1 ·91 | 13 39 59 ·6 | 132 · |
| 12 | 10 13 56 ·92 | 13 26 46 ·2 | 132 · |
| 13 | 10 15 51 ·61 | 13 13 30 ·2 | 133 · |
| 14 | 10 17 46 ·00 | 13 0 11 ·8 | 133 · |
| 15 | 10 19 40 ·07 | 12 46 50 ·9 | 133 · |
| 16 | 10 21 33 ·84 | 12 33 27 ·7 | 134 · |
| 17 | 10 23 27 ·31 | 12 20 2 ·1 | 134 · |
| 18 | 10 25 20 ·49 | 12 6 34 ·4 | 135 · |
| 19 | 10 27 13 ·38 | 11 53 4 ·4 | 135 · |
| 20 | 10 29 5 ·99 | 11 39 32 ·4 | 135 · |
| 21 | 10 30 58 ·31 | 11 25 58 ·3 | 136 · |
| 22 | 10 32 50 ·36 | 11 12 22 ·2 | 136 · |
| 23 | 10 34 42 ·14 | N.10 58 44 ·2 | 136 · |
| | *FRIDAY* 4. | | |
| 0 | 10 36 33 ·65 | N.10 45 4 ·3 | 136 · |
| 1 | 10 38 24 ·90 | 10 31 22 ·6 | 137 · |
| 2 | 10 40 15 ·89 | 10 17 39 ·2 | 137 · |
| 3 | 10 42 6 ·63 | 10 3 54 ·0 | 137 · |
| 4 | 10 43 57 ·13 | 9 50 7 ·2 | 138 · |
| 5 | 10 45 47 ·38 | 9 36 18 ·8 | 138 · |
| 6 | 10 47 37 ·40 | 9 22 28 ·9 | 138 · |
| 7 | 10 49 27 ·18 | 9 8 37 ·5 | 138 · |
| 8 | 10 51 16 ·74 | 8 54 44 ·6 | 139 · |
| 9 | 10 53 6 ·07 | 8 40 50 ·4 | 139 · |
| 10 | 10 54 55 ·19 | 8 26 54 ·9 | 139 · |
| 11 | 10 56 44 ·09 | 8 12 58 ·0 | 139 · |
| 12 | 10 58 32 ·79 | 7 59 0 ·0 | 139 · |
| 13 | 11 0 21 ·28 | 7 45 0 ·8 | 140 · |
| 14 | 11 2 9 ·58 | 7 31 0 ·4 | 140 · |
| 15 | 11 3 57 ·68 | 7 16 59 ·0 | 140 · |
| 16 | 11 5 45 ·59 | 7 2 56 ·6 | 140 · |
| 17 | 11 7 33 ·32 | 6 48 53 ·1 | 140 · |
| 18 | 11 9 20 ·87 | 6 34 48 ·8 | 140 · |
| 19 | 11 11 8 ·25 | 6 20 43 ·6 | 141 · |
| 20 | 11 12 55 ·46 | 6 6 37 ·5 | 141 · |
| 21 | 11 14 42 ·50 | 5 52 30 ·7 | 141 · |
| 22 | 11 16 29 ·39 | 5 38 23 ·1 | 141 · |
| 23 | 11 18 16 ·11 | 5 24 14 ·8 | 141 · |
| 24 | 11 20 2 ·69 | N. 5 10 5 ·9 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SATURDAY* 5. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 11 20 2 ·69 | N.5 10 5 ·9 | 141 ·58 |
| 1 | 11 21 49 ·12 | 4 55 56 ·4 | 141 ·68 |
| 2 | 11 23 35 ·41 | 4 41 46 ·3 | 141 ·77 |
| 3 | 11 25 21 ·57 | 4 27 35 ·7 | 141 ·83 |
| 4 | 11 27 7 ·60 | 4 13 24 ·7 | 141 ·92 |
| 5 | 11 28 53 ·50 | 3 59 13 ·2 | 141 ·97 |
| 6 | 11 30 39 ·28 | 3 45 1 ·4 | 142 ·03 |
| 7 | 11 32 24 ·95 | 3 30 49 ·2 | 142 ·08 |
| 8 | 11 34 10 ·50 | 3 16 36 ·7 | 142 ·13 |
| 9 | 11 35 55 ·95 | 3 2 23 ·9 | 142 ·17 |
| 10 | 11 37 41 ·30 | 2 48 10 ·9 | 142 ·18 |
| 11 | 11 39 26 ·55 | 2 33 57 ·8 | 142 ·22 |
| 12 | 11 41 11 ·71 | 2 19 44 ·5 | 142 ·23 |
| 13 | 11 42 56 ·79 | 2 5 31 ·1 | 142 ·23 |
| 14 | 11 44 41 ·78 | 1 51 17 ·7 | 142 ·25 |
| 15 | 11 46 26 ·70 | 1 37 4 ·2 | 142 ·23 |
| 16 | 11 48 11 ·55 | 1 22 50 ·8 | 142 ·22 |
| 17 | 11 49 56 ·33 | 1 8 37 ·5 | 142 ·22 |
| 18 | 11 51 41 ·04 | 0 54 24 ·2 | 142 ·17 |
| 19 | 11 53 25 ·70 | 0 40 11 ·2 | 142 ·15 |
| 20 | 11 55 10 ·31 | 0 25 58 ·3 | 142 ·10 |
| 21 | 11 56 54 ·87 | N.0 11 45 ·7 | 142 ·07 |
| 22 | 11 58 39 ·39 | S.0 2 26 ·7 | 142 ·00 |
| 23 | 12 0 23 ·87 | S.0 16 38 ·7 | 141 ·95 |
| | *SUNDAY* 6. | | |
| 0 | 12 2 8 ·31 | S.0 30 50 ·4 | 141 ·88 |
| 1 | 12 3 52 ·72 | 0 45 1 ·7 | 141 ·80 |
| 2 | 12 5 37 ·11 | 0 59 12 ·5 | 141 ·72 |
| 3 | 12 7 21 ·49 | 1 13 22 ·8 | 141 ·63 |
| 4 | 12 9 5 ·85 | 1 27 32 ·6 | 141 ·55 |
| 5 | 12 10 50 ·20 | 1 41 41 ·9 | 141 ·45 |
| 6 | 12 12 34 ·55 | 1 55 50 ·6 | 141 ·35 |
| 7 | 12 14 18 ·89 | 2 9 58 ·7 | 141 ·23 |
| 8 | 12 16 3 ·25 | 2 24 6 ·1 | 141 ·12 |
| 9 | 12 17 47 ·61 | 2 38 12 ·8 | 141 ·00 |
| 10 | 12 19 31 ·99 | 2 52 18 ·8 | 140 ·88 |
| 11 | 12 21 16 ·39 | 3 6 24 ·0 | 140 ·73 |
| 12 | 12 23 0 ·81 | 3 20 28 ·4 | 140 ·60 |
| 13 | 12 24 45 ·26 | 3 34 32 ·0 | 140 ·45 |
| 14 | 12 26 29 ·75 | 3 48 34 ·7 | 140 ·28 |
| 15 | 12 28 14 ·28 | 4 2 36 ·4 | 140 ·13 |
| 16 | 12 29 58 ·85 | 4 16 37 ·2 | 139 ·97 |
| 17 | 12 31 43 ·47 | 4 30 37 ·0 | 139 ·78 |
| 18 | 12 33 28 ·14 | 4 44 35 ·7 | 139 ·62 |
| 19 | 12 35 12 ·87 | 4 58 33 ·4 | 139 ·42 |
| 20 | 12 36 57 ·67 | 5 12 29 ·9 | 139 ·23 |
| 21 | 12 38 42 ·53 | 5 26 25 ·3 | 139 ·03 |
| 22 | 12 40 27 ·46 | 5 40 19 ·5 | 138 ·82 |
| 23 | 12 42 12 ·47 | 5 54 12 ·4 | 138 ·62 |
| 24 | 12 43 57 ·56 | S.6 8 4 ·1 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *MONDAY* 7. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 12 43 57 ·56 | S. 6 8 4 ·1 | 138 ·38 |
| 1 | 12 45 42 ·74 | 6 21 54 ·4 | 138 ·17 |
| 2 | 12 47 28 ·00 | 6 35 43 ·4 | 137 ·92 |
| 3 | 12 49 13 ·37 | 6 49 30 ·9 | 137 ·70 |
| 4 | 12 50 58 ·83 | 7 3 17 ·1 | 137 ·43 |
| 5 | 12 52 44 ·40 | 7 17 1 ·7 | 137 ·18 |
| 6 | 12 54 30 ·08 | 7 30 44 ·8 | 136 ·93 |
| 7 | 12 56 15 ·87 | 7 44 26 ·4 | 136 ·67 |
| 8 | 12 58 1 ·79 | 7 58 6 ·4 | 136 ·40 |
| 9 | 12 59 47 ·82 | 8 11 44 ·8 | 136 ·10 |
| 10 | 13 1 33 ·99 | 8 25 21 ·4 | 135 ·83 |
| 11 | 13 3 20 ·29 | 8 38 56 ·4 | 135 ·53 |
| 12 | 13 5 6 ·73 | 8 52 29 ·6 | 135 ·23 |
| 13 | 13 6 53 ·31 | 9 6 1 ·0 | 134 ·93 |
| 14 | 13 8 40 ·04 | 9 19 30 ·6 | 134 ·63 |
| 15 | 13 10 26 ·92 | 9 32 58 ·4 | 134 ·30 |
| 16 | 13 12 13 ·96 | 9 46 24 ·2 | 133 ·97 |
| 17 | 13 14 1 ·16 | 9 59 48 ·0 | 133 ·63 |
| 18 | 13 15 48 ·53 | 10 13 9 ·8 | 133 ·32 |
| 19 | 13 17 36 ·06 | 10 26 29 ·6 | 132 ·95 |
| 20 | 13 19 23 ·78 | 10 39 47 ·3 | 132 ·58 |
| 21 | 13 21 11 ·67 | 10 53 2 ·8 | 132 ·23 |
| 22 | 13 22 59 ·74 | 11 6 16 ·2 | 131 ·85 |
| 23 | 13 24 48 ·01 | S.11 19 27 ·3 | 131 ·48 |
| | *TUESDAY* 8. | | |
| 0 | 13 26 36 ·47 | S.11 32 36 ·2 | 131 ·08 |
| 1 | 13 28 25 ·13 | 11 45 42 ·7 | 130 ·70 |
| 2 | 13 30 13 ·99 | 11 58 46 ·9 | 130 ·30 |
| 3 | 13 32 3 ·05 | 12 11 48 ·7 | 129 ·88 |
| 4 | 13 33 52 ·33 | 12 24 48 ·0 | 129 ·47 |
| 5 | 13 35 41 ·82 | 12 37 44 ·8 | 129 ·05 |
| 6 | 13 37 31 ·53 | 12 50 39 ·1 | 128 ·62 |
| 7 | 13 39 21 ·47 | 13 3 30 ·8 | 128 ·17 |
| 8 | 13 41 11 ·64 | 13 16 19 ·8 | 127 ·73 |
| 9 | 13 43 2 ·04 | 13 29 6 ·2 | 127 ·27 |
| 10 | 13 44 52 ·68 | 13 41 49 ·8 | 126 ·80 |
| 11 | 13 46 43 ·57 | 13 54 30 ·6 | 126 ·33 |
| 12 | 13 48 34 ·70 | 14 7 8 ·6 | 125 ·85 |
| 13 | 13 50 26 ·08 | 14 19 43 ·7 | 125 ·37 |
| 14 | 13 52 17 ·72 | 14 32 15 ·9 | 12[illegible] |
| 15 | 13 54 9 ·62 | 14 44 45 ·1 | |
| 16 | 13 56 1 ·78 | 14 57 11 [illegible] | |
| 17 | 13 57 54 ·21 | 15 9 34 | |
| 18 | 13 59 46 ·91 | 15 21 5[illegible] | |
| 19 | 14 1 39 ·89 | 15 34 1[illegible] | |
| 20 | 14 3 33 ·15 | 15 46 2[illegible] | |
| 21 | 14 5 26 ·69 | 15 58 | |
| 22 | 14 7 20 ·53 | 16 10 | |
| 23 | 14 9 14 ·65 | 16 22 | |
| 24 | 14 11 9 ·07 | S.16 34 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *WEDNESDAY* 9. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 14 11 9·07 | S. 16 34 44·7 | 119·40 |
| 1 | 14 13 3·79 | 16 46 41·1 | 118·78 |
| 2 | 14 14 58·82 | 16 58 33·8 | 118·18 |
| 3 | 14 16 54·16 | 17 10 22·9 | 117·57 |
| 4 | 14 18 49·81 | 17 22 8·3 | 116·95 |
| 5 | 14 20 45·78 | 17 33 50·0 | 116·30 |
| 6 | 14 22 42·07 | 17 45 27·8 | 115·67 |
| 7 | 14 24 38·68 | 17 57 1·8 | 115·00 |
| 8 | 14 26 35·62 | 18 8 31·8 | 114·35 |
| 9 | 14 28 32·88 | 18 19 57·9 | 113·67 |
| 10 | 14 30 30·49 | 18 31 19·9 | 112·97 |
| 11 | 14 32 28·43 | 18 42 37·7 | 112·28 |
| 12 | 14 34 26·71 | 18 53 51·4 | 111·58 |
| 13 | 14 36 25·34 | 19 5 0·9 | 110·85 |
| 14 | 14 38 24·32 | 19 16 6·0 | 110·13 |
| 15 | 14 40 23·65 | 19 27 6·8 | 109·40 |
| 16 | 14 42 23·34 | 19 38 3·2 | 108·63 |
| 17 | 14 44 23·39 | 19 48 55·0 | 107·88 |
| 18 | 14 46 23·79 | 19 59 42·3 | 107·12 |
| 19 | 14 48 24·57 | 20 10 25·0 | 106·33 |
| 20 | 14 50 25·71 | 20 21 3·0 | 105·53 |
| 21 | 14 52 27·22 | 20 31 36·2 | 104·73 |
| 22 | 14 54 29·10 | 20 42 4·6 | 103·93 |
| 23 | 14 56 31·36 | S. 20 52 28·2 | 103·08 |
| | *THURSDAY* 10. | | |
| 0 | 14 58 34·00 | S. 21 2 46·7 | 102·25 |
| 1 | 15 0 37·02 | 21 13 0·2 | 101·42 |
| 2 | 15 2 40·42 | 21 23 8·7 | 100·53 |
| 3 | 15 4 44·22 | 21 33 11·9 | 99·67 |
| 4 | 15 6 48·39 | 21 43 9·9 | 98·78 |
| 5 | 15 8 52·96 | 21 53 2·6 | 97·88 |
| 6 | 15 10 57·93 | 22 2 49·9 | 96·97 |
| 7 | 15 13 3·28 | 22 12 31·7 | 96·07 |
| 8 | 15 15 9·03 | 22 22 8·1 | 95·12 |
| 9 | 15 17 15·18 | 22 31 38·8 | 94·17 |
| 10 | 15 19 21·73 | 22 41 3·8 | 93·22 |
| 11 | 15 21 28·69 | 22 50 23·1 | 92·23 |
| 12 | 15 23 36·04 | 22 59 36·5 | 91·25 |
| 13 | 15 25 43·80 | 23 8 44·0 | 90·27 |
| 14 | 15 27 51·97 | 23 17 45·6 | 89·25 |
| 15 | 15 30 0·54 | 23 26 41·1 | 88·23 |
| 16 | 15 32 9·52 | 23 35 30·5 | 87·20 |
| 17 | 15 34 18·91 | 23 44 13·7 | 86·13 |
| 18 | 15 36 28·71 | 23 52 50·5 | 85·10 |
| 19 | 15 38 38·92 | 24 1 21·1 | 84·02 |
| 20 | 15 40 49·54 | 24 9 45·2 | 82·93 |
| 21 | 15 43 0·58 | 24 18 2·8 | 81·83 |
| 22 | 15 45 12·02 | 24 26 13·8 | 80·73 |
| 23 | 15 47 23·88 | 24 34 18·2 | 79·60 |
| | 15 49 36·14 | S. 24 42 15·8 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *FRIDAY* 11. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 15 49 36·14 | S. 24 42 15·8 | 78·47 |
| 1 | 15 51 48·82 | 24 50 6·6 | 77·33 |
| 2 | 15 54 1·91 | 24 57 50·6 | 76·15 |
| 3 | 15 56 15·41 | 25 5 27·5 | 74·98 |
| 4 | 15 58 29·32 | 25 12 57·4 | 73·80 |
| 5 | 16 0 43·64 | 25 20 20·2 | 72·60 |
| 6 | 16 2 58·37 | 25 27 35·8 | 71·38 |
| 7 | 16 5 13·51 | 25 34 44·1 | 70·15 |
| 8 | 16 7 29·05 | 25 41 45·0 | 68·92 |
| 9 | 16 9 45·00 | 25 48 38·5 | 67·65 |
| 10 | 16 12 1·35 | 25 55 24·4 | 66·40 |
| 11 | 16 14 18·10 | 26 2 2·8 | 65·12 |
| 12 | 16 16 35·25 | 26 8 33·5 | 63·82 |
| 13 | 16 18 52·80 | 26 14 56·4 | 62·53 |
| 14 | 16 21 10·75 | 26 21 11·6 | 61·20 |
| 15 | 16 23 29·10 | 26 27 18·8 | 59·87 |
| 16 | 16 25 47·83 | 26 33 18·0 | 58·52 |
| 17 | 16 28 6·95 | 26 39 9·1 | 57·18 |
| 18 | 16 30 26·46 | 26 44 52·2 | 55·80 |
| 19 | 16 32 46·34 | 26 50 27·0 | 54·42 |
| 20 | 16 35 6·61 | 26 55 53·5 | 53·03 |
| 21 | 16 37 27·25 | 27 1 11·7 | 51·62 |
| 22 | 16 39 48·26 | 27 6 21·4 | 50·20 |
| 23 | 16 42 9·65 | S. 27 11 22·6 | 48·78 |
| | *SATURDAY* 12. | | |
| 0 | 16 44 31·39 | S. 27 16 15·3 | 47·33 |
| 1 | 16 46 53·50 | 27 20 59·3 | 45·88 |
| 2 | 16 49 15·96 | 27 25 34·6 | 44·42 |
| 3 | 16 51 38·77 | 27 30 1·1 | 42·95 |
| 4 | 16 54 1·93 | 27 34 18·8 | 41·45 |
| 5 | 16 56 25·43 | 27 38 27·5 | 39·95 |
| 6 | 16 58 49·27 | 27 42 27·2 | 38·43 |
| 7 | 17 1 13·44 | 27 46 17·8 | 36·92 |
| 8 | 17 3 37·94 | 27 49 59·3 | 35·37 |
| 9 | 17 6 2·76 | 27 53 31·5 | 33·85 |
| 10 | 17 8 27·89 | 27 56 54·6 | 32·27 |
| 11 | 17 10 53·33 | 28 0 8·2 | 30·7 |
| 12 | 17 13 19·08 | 28 3 12·5 | 29·1 |
| 13 | 17 15 45·13 | 28 6 7·3 | 27·5 |
| 14 | 17 18 11·47 | 28 8 52·6 | 25·9 |
| 15 | 17 20 38·09 | 28 11 28·3 | 24·3 |
| 16 | 17 23 4·99 | 28 13 54·3 | 22·7 |
| 17 | 17 25 32·17 | 28 16 10·7 | 21·1 |
| 18 | 17 27 59·61 | 28 18 17·3 | 19·4 |
| 19 | 17 30 27·31 | 28 20 14·1 | 17·8 |
| 20 | 17 32 55·25 | 28 22 1·0 | 16·1 |
| 21 | 17 35 23·45 | 28 23 38·0 | 14·5 |
| 22 | 17 37 51·88 | 28 25 5·1 | 12·8 |
| 23 | 17 40 20·54 | 28 26 22·2 | 11·1 |
| 24 | 17 42 49·42 | S. 28 27 29·2 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| ight Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|
| *SUNDAY* 13. | | |
| h m s | ° ′ ″ | ″ |
| 7 42 49 ·42 | S. 28 27 29 ·2 | 9 ·48 |
| 7 45 18 ·52 | 28 28 26 ·1 | 7 ·80 |
| 7 47 47 ·82 | 28 29 12 ·9 | 6 ·10 |
| 7 50 17 ·32 | 28 29 49 ·5 | 4 ·40 |
| 7 52 47 ·01 | 28 30 15 ·9 | 2 ·68 |
| 7 55 16 ·89 | 28 30 32 ·0 | 0 ·97 |
| 7 57 46 ·93 | 28 30 37 ·8 | 0 ·77 |
| 8 0 17 ·14 | 28 30 33 ·2 | 2 ·48 |
| 8 2 47 ·51 | 28 30 18 ·3 | 4 ·20 |
| 8 5 18 ·03 | 28 29 53 ·1 | 5 ·97 |
| 8 7 48 ·69 | 28 29 17 ·3 | 7 ·68 |
| 8 10 19 ·48 | 28 28 31 ·2 | 9 ·45 |
| 8 12 50 ·39 | 28 27 34 ·5 | 11 ·20 |
| 8 15 21 ·42 | 28 26 27 ·3 | 12 ·95 |
| 8 17 52 ·55 | 28 25 9 ·6 | 14 ·72 |
| 8 20 23 ·78 | 28 23 41 ·3 | 16 ·47 |
| 8 22 55 ·10 | 28 22 2 ·5 | 18 ·23 |
| 8 25 26 ·50 | 28 20 13 ·1 | 20 ·00 |
| 8 27 57 ·96 | 28 18 13 ·1 | 21 ·77 |
| 8 30 29 ·49 | 28 16 2 ·5 | 23 ·53 |
| 8 33 1 ·07 | 28 13 41 ·3 | 25 ·32 |
| 8 35 32 ·69 | 28 11 9 ·4 | 27 ·08 |
| 8 38 4 ·35 | 28 8 26 ·9 | 28 ·85 |
| 8 40 36 ·03 | S. 28 5 33 ·8 | 30 ·62 |
| *MONDAY* 14. | | |
| 8 43 7 ·73 | S. 28 2 30 ·1 | 32 ·40 |
| 8 45 39 ·44 | 27 59 15 ·7 | 34 ·17 |
| 8 48 11 ·15 | 27 55 50 ·7 | 35 ·93 |
| 8 50 42 ·85 | 27 52 15 ·1 | 37 ·72 |
| 8 53 14 ·52 | 27 48 28 ·8 | 39 ·47 |
| 8 55 46 ·18 | 27 44 32 ·0 | 41 ·25 |
| 8 58 17 ·80 | 27 40 24 ·5 | 43 ·00 |
| 9 0 49 ·37 | 27 36 6 ·5 | 44 ·78 |
| 9 3 20 ·89 | 27 31 37 ·8 | 46 ·52 |
| 9 5 52 ·35 | 27 26 58 ·7 | 48 ·30 |
| 9 8 23 ·75 | 27 22 8 ·9 | 50 ·03 |
| 9 10 55 ·06 | 27 17 8 ·7 | 51 ·78 |
| 9 13 26 ·29 | 27 11 58 ·0 | 53 ·53 |
| 9 15 57 ·43 | 27 6 36 ·8 | 55 ·28 |
| 9 18 28 ·47 | 27 1 5 ·1 | 57 ·00 |
| 9 20 59 ·39 | 26 55 23 ·1 | 58 ·75 |
| 9 23 30 ·20 | 26 49 30 ·6 | 60 ·47 |
| 9 26 0 ·89 | 26 43 27 ·8 | 62 ·17 |
| 9 28 31 ·44 | 26 37 14 ·8 | 63 ·90 |
| 9 31 1 ·86 | 26 30 51 ·4 | 65 ·60 |
| 9 33 32 ·13 | 26 24 17 ·8 | 67 ·28 |
| 9 36 2 ·24 | 26 17 34 ·1 | 68 ·98 |
| 9 38 32 ·20 | 26 10 40 ·2 | 70 ·67 |
| 9 41 1 ·99 | 26 3 36 ·2 | 72 ·35 |
| 9 43 31 ·61 | S. 25 56 22 ·1 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 15. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 19 43 31 ·61 | S. 25 56 22 ·1 | 74 ·00 |
| 1 | 19 46 1 ·05 | 25 48 58 ·1 | 75 ·67 |
| 2 | 19 48 30 ·30 | 25 41 24 ·1 | 77 ·32 |
| 3 | 19 50 59 ·36 | 25 33 40 ·2 | 78 ·97 |
| 4 | 19 53 28 ·22 | 25 25 46 ·4 | 80 ·58 |
| 5 | 19 55 56 ·87 | 25 17 42 ·9 | 82 ·20 |
| 6 | 19 58 25 ·32 | 25 9 29 ·7 | 83 ·83 |
| 7 | 20 0 53 ·55 | 25 1 6 ·7 | 85 ·42 |
| 8 | 20 3 21 ·57 | 24 52 34 ·2 | 87 ·02 |
| 9 | 20 5 49 ·36 | 24 43 52 ·1 | 88 ·60 |
| 10 | 20 8 16 ·91 | 24 35 0 ·5 | 90 ·15 |
| 11 | 20 10 44 ·24 | 24 25 59 ·6 | 91 ·73 |
| 12 | 20 13 11 ·32 | 24 16 49 ·2 | 93 ·28 |
| 13 | 20 15 38 ·16 | 24 7 29 ·5 | 94 ·82 |
| 14 | 20 18 4 ·75 | 23 58 0 ·6 | 96 ·33 |
| 15 | 20 20 31 ·09 | 23 48 22 ·6 | 97 ·85 |
| 16 | 20 22 57 ·17 | 23 38 35 ·5 | 99 ·33 |
| 17 | 20 25 22 ·99 | 23 28 39 ·5 | 100 ·83 |
| 18 | 20 27 48 ·55 | 23 18 34 ·5 | 102 ·32 |
| 19 | 20 30 13 ·84 | 23 8 20 ·6 | 103 ·77 |
| 20 | 20 32 38 ·86 | 22 57 58 ·0 | 105 ·22 |
| 21 | 20 35 3 ·61 | 22 47 26 ·7 | 106 ·63 |
| 22 | 20 37 28 ·08 | 22 36 46 ·9 | 108 ·08 |
| 23 | 20 39 52 ·27 | S. 22 25 58 ·4 | 109 ·47 |
| | *WEDNESDAY* 16. | | |
| 0 | 20 42 16 ·18 | S. 22 15 1 ·6 | 110 ·87 |
| 1 | 20 44 39 ·80 | 22 3 56 ·4 | 112 ·23 |
| 2 | 20 47 3 ·14 | 21 52 43 ·0 | 113 ·60 |
| 3 | 20 49 26 ·19 | 21 41 21 ·4 | 114 ·95 |
| 4 | 20 51 48 ·95 | 21 29 51 ·7 | 116 ·28 |
| 5 | 20 54 11 ·42 | 21 18 14 ·0 | 117 ·62 |
| 6 | 20 56 33 ·60 | 21 6 28 ·3 | 118 ·92 |
| 7 | 20 58 55 ·48 | 20 54 34 ·8 | 120 ·20 |
| 8 | 21 1 17 ·07 | 20 42 33 ·6 | 121 ·48 |
| 9 | 21 3 38 ·36 | 20 30 24 ·7 | 122 ·73 |
| 10 | 21 5 59 ·36 | 20 18 8 ·3 | 124 ·00 |
| 11 | 21 8 20 ·06 | 20 5 44 ·3 | 125 ·22 |
| 12 | 21 10 40 ·46 | 19 53 13 | |
| 13 | 21 13 0 ·56 | 19 40 | |
| 14 | 21 15 20 ·37 | 19 | |
| 15 | 21 17 39 ·88 | 19 | |
| 16 | 21 19 59 ·10 | | |
| 17 | 21 22 18 ·01 | | |
| 18 | 21 24 36 ·64 | | |
| 19 | 21 26 54 ·96 | | |
| 20 | 21 29 12 ·99 | | |
| 21 | 21 31 30 ·73 | | |
| 22 | 21 33 48 ·18 | | |
| 23 | 21 36 5 ·33 | | |
| 24 | 21 38 22 ·20 | | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *THURSDAY* 17. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 21 38 22 ·20 | S. 17 13 55 ·2 | 139 ·78 |
| 1 | 21 40 38 ·78 | 16 59 56 ·5 | 140 ·78 |
| 2 | 21 42 55 ·07 | 16 45 51 ·8 | 141 ·77 |
| 3 | 21 45 11 ·07 | 16 31 41 ·2 | 142 ·73 |
| 4 | 21 47 26 ·80 | 16 17 24 ·8 | 143 ·70 |
| 5 | 21 49 42 ·24 | 16 3 2 ·6 | 144 ·65 |
| 6 | 21 51 57 ·40 | 15 48 34 ·7 | 145 ·55 |
| 7 | 21 54 12 ·29 | 15 34 1 ·4 | 146 ·47 |
| 8 | 21 56 26 ·90 | 15 19 22 ·6 | 147 ·37 |
| 9 | 21 58 41 ·24 | 15 4 38 ·4 | 148 ·22 |
| 10 | 22 0 55 ·32 | 14 49 49 ·1 | 149 ·10 |
| 11 | 22 3 9 ·12 | 14 34 54 ·5 | 149 ·92 |
| 12 | 22 5 22 ·66 | 14 19 55 ·0 | 150 ·75 |
| 13 | 22 7 35 ·94 | 14 4 50 ·5 | 151 ·55 |
| 14 | 22 9 48 ·96 | 13 49 41 ·2 | 152 ·35 |
| 15 | 22 12 1 ·73 | 13 34 27 ·1 | 153 ·10 |
| 16 | 22 14 14 ·25 | 13 19 8 ·5 | 153 ·88 |
| 17 | 22 16 26 ·52 | 13 3 45 ·2 | 154 ·60 |
| 18 | 22 18 38 ·54 | 12 48 17 ·6 | 155 ·33 |
| 19 | 22 20 50 ·33 | 12 32 45 ·6 | 156 ·03 |
| 20 | 22 23 1 ·87 | 12 17 9 ·4 | 156 ·73 |
| 21 | 22 25 13 ·19 | 12 1 29 ·0 | 157 ·38 |
| 22 | 22 27 24 ·27 | 11 45 44 ·7 | 158 ·07 |
| 23 | 22 29 35 ·13 | S. 11 29 56 ·3 | 158 ·68 |
| | *FRIDAY* 18. | | |
| 0 | 22 31 45 ·76 | S. 11 14 4 ·2 | 159 ·32 |
| 1 | 22 33 56 ·18 | 10 58 8 ·3 | 159 ·90 |
| 2 | 22 36 6 ·38 | 10 42 8 ·9 | 160 ·52 |
| 3 | 22 38 16 ·37 | 10 26 5 ·8 | 161 ·07 |
| 4 | 22 40 26 ·16 | 10 9 59 ·4 | 161 ·63 |
| 5 | 22 42 35 ·74 | 9 53 49 ·6 | 162 ·17 |
| 6 | 22 44 45 ·13 | 9 37 36 ·6 | 162 ·70 |
| 7 | 22 46 54 ·33 | 9 21 20 ·4 | 163 ·20 |
| 8 | 22 49 3 ·33 | 9 5 1 ·2 | 163 ·68 |
| 9 | 22 51 12 ·15 | 8 48 39 ·1 | 164 ·17 |
| 10 | 22 53 20 ·80 | 8 32 14 ·1 | 164 ·62 |
| 11 | 22 55 29 ·26 | 8 15 46 ·4 | 165 ·07 |
| 12 | 22 57 37 ·56 | 7 59 16 ·0 | 165 ·48 |
| 13 | 22 59 45 ·69 | 7 42 43 ·1 | 165 ·90 |
| 14 | 23 1 53 ·66 | 7 26 7 ·7 | 166 ·28 |
| 15 | 23 4 1 ·48 | 7 9 30 ·0 | 166 ·67 |
| 16 | 23 6 9 ·14 | 6 52 50 ·0 | 167 ·02 |
| 17 | 23 8 16 ·66 | 6 36 7 ·9 | 167 ·37 |
| 18 | 23 10 24 ·03 | 6 19 23 ·7 | 167 ·70 |
| 19 | 23 12 31 ·27 | 6 2 37 ·5 | 168 ·00 |
| 20 | 23 14 38 ·37 | 5 45 49 ·5 | 168 ·30 |
| 21 | 23 16 45 ·35 | 5 28 59 ·7 | 168 ·57 |
| 22 | 23 18 52 ·20 | 5 12 8 ·3 | 168 ·85 |
| 23 | 23 20 58 ·94 | 4 55 15 ·2 | 169 ·08 |
| 24 | 23 23 5 ·57 | S. 4 38 20 ·7 | |

| Hour. | Right Ascension. | Declination. |
|---|---|---|
| | *SATURDAY* 19. | |
| | h m s | ° ′ ″ |
| 0 | 23 23 5 ·57 | S. 4 38 20 ·7 |
| 1 | 23 25 12 ·09 | 4 21 24 ·8 |
| 2 | 23 27 18 ·51 | 4 4 27 ·7 |
| 3 | 23 29 24 ·84 | 3 47 29 ·3 |
| 4 | 23 31 31 ·07 | 3 30 29 ·8 |
| 5 | 23 33 37 ·22 | 3 13 29 ·4 |
| 6 | 23 35 43 ·29 | 2 56 28 ·0 |
| 7 | 23 37 49 ·28 | 2 39 25 ·8 |
| 8 | 23 39 55 ·21 | 2 22 22 ·8 |
| 9 | 23 42 1 ·07 | 2 5 19 ·3 |
| 10 | 23 44 6 ·87 | 1 48 15 ·2 |
| 11 | 23 46 12 ·62 | 1 31 10 ·6 |
| 12 | 23 48 18 ·32 | 1 14 5 ·7 |
| 13 | 23 50 23 ·98 | 0 57 0 ·5 |
| 14 | 23 52 29 ·60 | 0 39 55 ·1 |
| 15 | 23 54 35 ·19 | 0 22 49 ·7 |
| 16 | 23 56 40 ·76 | S. 0 5 44 ·3 |
| 17 | 23 58 46 ·30 | N. 0 11 21 ·1 |
| 18 | 0 0 51 ·83 | 0 28 26 ·2 |
| 19 | 0 2 57 ·35 | 0 45 31 ·0 |
| 20 | 0 5 2 ·86 | 1 2 35 ·4 |
| 21 | 0 7 8 ·38 | 1 19 39 ·4 |
| 22 | 0 9 13 ·90 | 1 36 42 ·8 |
| 23 | 0 11 19 ·44 | N. 1 53 45 ·5 |
| | *SUNDAY* 20. | |
| 0 | 0 13 24 ·99 | N. 2 10 47 ·5 |
| 1 | 0 15 30 ·57 | 2 27 48 ·6 |
| 2 | 0 17 36 ·17 | 2 44 48 ·8 |
| 3 | 0 19 41 ·80 | 3 1 47 ·9 |
| 4 | 0 21 47 ·48 | 3 18 45 ·9 |
| 5 | 0 23 53 ·20 | 3 35 42 ·8 |
| 6 | 0 25 58 ·97 | 3 52 38 ·3 |
| 7 | 0 28 4 ·80 | 4 9 32 ·4 |
| 8 | 0 30 10 ·68 | 4 26 25 ·1 |
| 9 | 0 32 16 ·63 | 4 43 16 ·2 |
| 10 | 0 34 22 ·66 | 5 0 5 ·6 |
| 11 | 0 36 28 ·76 | 5 16 53 ·3 |
| 12 | 0 38 34 ·94 | 5 33 39 ·2 |
| 13 | 0 40 41 ·21 | 5 50 23 ·2 |
| 14 | 0 42 47 ·57 | 6 7 5 ·1 |
| 15 | 0 44 54 ·04 | 6 23 45 ·0 |
| 16 | 0 47 0 ·60 | 6 40 22 ·6 |
| 17 | 0 49 7 ·27 | 6 56 58 ·0 |
| 18 | 0 51 14 ·06 | 7 13 31 ·0 |
| 19 | 0 53 20 ·97 | 7 30 1 ·6 |
| 20 | 0 55 28 ·00 | 7 46 29 ·6 |
| 21 | 0 57 35 ·16 | 8 2 54 ·9 |
| 22 | 0 59 42 ·45 | 8 19 17 ·6 |
| 23 | 1 1 49 ·88 | 8 35 37 ·4 |
| 24 | 1 3 57 ·46 | N. 8 51 54 ·3 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *MONDAY* 21. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 1 3 57·46 | N. 8 51 54·3 | 162·32 |
| 1 | 1 6 5·19 | 9 8 8·2 | 161·80 |
| 2 | 1 8 13·07 | 9 24 19·0 | 161·28 |
| 3 | 1 10 21·11 | 9 40 26·7 | 160·73 |
| 4 | 1 12 29·32 | 9 56 31·1 | 160·17 |
| 5 | 1 14 37·70 | 10 12 32·1 | 159·60 |
| 6 | 1 16 46·25 | 10 28 29·7 | 159·02 |
| 7 | 1 18 54·98 | 10 44 23·8 | 158·42 |
| 8 | 1 21 3·90 | 11 0 14·3 | 157·78 |
| 9 | 1 23 13·00 | 11 16 1·0 | 157·15 |
| 10 | 1 25 22·30 | 11 31 43·9 | 156·52 |
| 11 | 1 27 31·79 | 11 47 23·0 | 155·85 |
| 12 | 1 29 41·49 | 12 2 58·1 | 155·17 |
| 13 | 1 31 51·40 | 12 18 29·1 | 154·48 |
| 14 | 1 34 1·51 | 12 33 56·0 | 153·77 |
| 15 | 1 36 11·85 | 12 49 18·6 | 153·05 |
| 16 | 1 38 22·40 | 13 4 36·9 | 152·32 |
| 17 | 1 40 33·18 | 13 19 50·8 | 151·55 |
| 18 | 1 42 44·19 | 13 35 0·1 | 150·80 |
| 19 | 1 44 55·42 | 13 50 4·9 | 150·00 |
| 20 | 1 47 6·90 | 14 5 4·9 | 149·22 |
| 21 | 1 49 18·61 | 14 20 0·2 | 148·40 |
| 22 | 1 51 30·57 | 14 34 50·6 | 147·58 |
| 23 | 1 53 42·78 | N.14 49 36·1 | 146·73 |
| | *TUESDAY* 22. | | |
| 0 | 1 55 55·24 | N.15 4 16·5 | 145·88 |
| 1 | 1 58 7·95 | 15 18 51·8 | 145·00 |
| 2 | 2 0 20·92 | 15 33 21·8 | 144·13 |
| 3 | 2 2 34·15 | 15 47 46·6 | 143·22 |
| 4 | 2 4 47·65 | 16 2 5·9 | 142·32 |
| 5 | 2 7 1·42 | 16 16 19·8 | 141·37 |
| 6 | 2 9 15·46 | 16 30 28·0 | 140·43 |
| 7 | 2 11 29·77 | 16 44 30·6 | 139·47 |
| 8 | 2 13 44·36 | 16 58 27·4 | 138·48 |
| 9 | 2 15 59·23 | 17 12 18·3 | 137·52 |
| 10 | 2 18 14·39 | 17 26 3·4 | 136·48 |
| 11 | 2 20 29·83 | 17 39 42·3 | 135·48 |
| 12 | 2 22 45·56 | 17 53 15·2 | 134·43 |
| 13 | 2 25 1·58 | 18 6 41·8 | 133·40 |
| 14 | 2 27 17·90 | 18 20 2·2 | 132·33 |
| 15 | 2 29 34·51 | 18 33 16·2 | 131·23 |
| 16 | 2 31 51·42 | 18 46 23·6 | 130·17 |
| 17 | 2 34 8·63 | 18 59 24·6 | 129·03 |
| 18 | 2 36 26·13 | 19 12 18·8 | 127·93 |
| 19 | 2 38 43·95 | 19 25 6·4 | 126·78 |
| 20 | 2 41 2·07 | 19 37 47·1 | 125·63 |
| 21 | 2 43 20·49 | 19 50 20·9 | 124·47 |
| 22 | 2 45 39·22 | 20 2 47·7 | 123·28 |
| 23 | 2 47 58·26 | 20 15 7·4 | 122·08 |
| 24 | 2 50 17·61 | N.20 27 19·9 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *WEDNESDAY* 23. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 2 50 17·61 | N.20 27 19·9 | 120·88 |
| 1 | 2 52 37·27 | 20 39 25·2 | 119·67 |
| 2 | 2 54 57·24 | 20 51 23·2 | 118·42 |
| 3 | 2 57 17·53 | 21 3 13·7 | 117·17 |
| 4 | 2 59 38·12 | 21 14 56·7 | 115·90 |
| 5 | 3 1 59·03 | 21 26 32·1 | 114·62 |
| 6 | 3 4 20·25 | 21 37 59·8 | 113·33 |
| 7 | 3 6 41·79 | 21 49 19·8 | 112·02 |
| 8 | 3 9 3·63 | 22 0 31·9 | 110·70 |
| 9 | 3 11 25·78 | 22 11 36·1 | 109·37 |
| 10 | 3 13 48·25 | 22 22 32·3 | 108·00 |
| 11 | 3 16 11·03 | 22 33 20·3 | 106·65 |
| 12 | 3 18 34·11 | 22 44 0·2 | 105·27 |
| 13 | 3 20 57·50 | 22 54 31·8 | 103·88 |
| 14 | 3 23 21·21 | 23 4 55·1 | 102·47 |
| 15 | 3 25 45·21 | 23 15 9·9 | 101·07 |
| 16 | 3 28 9·52 | 23 25 16·3 | 99·62 |
| 17 | 3 30 34·14 | 23 35 14·0 | 98·20 |
| 18 | 3 32 59·05 | 23 45 3·2 | 96·72 |
| 19 | 3 35 24·26 | 23 54 43·5 | 95·27 |
| 20 | 3 37 49·76 | 24 4 15·1 | 93·78 |
| 21 | 3 40 15·56 | 24 13 37·8 | 92·30 |
| 22 | 3 42 41·65 | 24 22 51·6 | 90·78 |
| 23 | 3 45 8·03 | N.24 31 56·3 | 89·27 |
| | *THURSDAY* 24. | | |
| 0 | 3 47 34·69 | N.24 40 51·9 | 87·75 |
| 1 | 3 50 1·63 | 24 49 38·4 | 86·20 |
| 2 | 3 52 28·86 | 24 58 15·6 | 84·65 |
| 3 | 3 54 56·35 | 25 6 43·5 | 83·10 |
| 4 | 3 57 24·12 | 25 15 2·1 | 81·52 |
| 5 | 3 59 52·15 | 25 23 11·2 | 79·93 |
| 6 | 4 2 20·44 | 25 31 10·8 | 78·33 |
| 7 | 4 4 48·99 | 25 39 0·8 | 76·72 |
| 8 | 4 7 17·80 | 25 46 41·1 | 75·12 |
| 9 | 4 9 46·85 | 25 54 11·8 | 73·50 |
| 10 | 4 12 16·15 | 26 1 32·8 | 71·85 |
| 11 | 4 14 45·68 | 26 8 43·9 | 70·20 |
| 12 | 4 17 15·45 | 26 15 45·1 | 68·55 |
| 13 | 4 19 45·45 | 26 22 36·4 | 66·88 |
| 14 | 4 22 15·67 | 26 29 17·7 | 65· |
| 15 | 4 24 46·10 | 26 35 48·9 | |
| 16 | 4 27 16·75 | 26 42 10· | |
| 17 | 4 29 47·60 | 26 48 21 | |
| 18 | 4 32 18·65 | 26 54 2 | |
| 19 | 4 34 49·89 | 27 0 1 | |
| 20 | 4 37 21·31 | [illegible] | |
| 21 | 4 39 52·91 | [illegible] | |
| 22 | 4 42 24·68 | [illegible] | |
| 23 | 4 44 56·62 | [illegible] | |
| 24 | 4 47 28·71 | [illegible] | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *FRIDAY* 25. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 4 47 28 ·71 | N.27 26 50 ·2 | 48 ·03 |
| 1 | 4 50 0 ·95 | 27 31 38 ·4 | 46 ·28 |
| 2 | 4 52 33 ·34 | 27 36 16 ·1 | 44 ·53 |
| 3 | 4 55 5 ·86 | 27 40 43 ·3 | 42 ·77 |
| 4 | 4 57 38 ·50 | 27 44 59 ·9 | 40 ·98 |
| 5 | 5 0 11 ·27 | 27 49 5 ·8 | 39 ·22 |
| 6 | 5 2 44 ·14 | 27 53 1 ·1 | 37 ·43 |
| 7 | 5 5 17 ·12 | 27 56 45 ·7 | 35 ·65 |
| 8 | 5 7 50 ·19 | 28 0 19 ·6 | 33 ·85 |
| 9 | 5 10 23 ·34 | 28 3 42 ·7 | 32 ·08 |
| 10 | 5 12 56 ·57 | 28 6 55 ·2 | 30 ·27 |
| 11 | 5 15 29 ·88 | 28 9 56 ·8 | 28 ·48 |
| 12 | 5 18 3 ·24 | 28 12 47 ·7 | 26 ·68 |
| 13 | 5 20 36 ·66 | 28 15 27 ·8 | 24 ·87 |
| 14 | 5 23 10 ·12 | 28 17 57 ·0 | 23 ·07 |
| 15 | 5 25 43 ·61 | 28 20 15 ·4 | 21 ·27 |
| 16 | 5 28 17 ·13 | 28 22 23 ·0 | 19 ·47 |
| 17 | 5 30 50 ·66 | 28 24 19 ·8 | 17 ·67 |
| 18 | 5 33 24 ·20 | 28 26 5 ·8 | 15 ·85 |
| 19 | 5 35 57 ·74 | 28 27 40 ·9 | 14 ·03 |
| 20 | 5 38 31 ·27 | 28 29 5 ·1 | 12 ·25 |
| 21 | 5 41 4 ·77 | 28 30 18 ·6 | 10 ·43 |
| 22 | 5 43 38 ·25 | 28 31 21 ·2 | 8 ·62 |
| 23 | 5 46 11 ·69 | N.28 32 12 ·9 | 6 ·83 |
| | *SATURDAY* 26. | | |
| 0 | 5 48 45 ·08 | N.28 32 53 ·9 | 5 ·03 |
| 1 | 5 51 18 ·42 | 28 33 24 ·1 | 3 ·22 |
| 2 | 5 53 51 ·69 | 28 33 43 ·4 | 1 ·43 |
| 3 | 5 56 24 ·88 | 28 33 52 ·0 | 0 ·35 |
| 4 | 5 58 57 ·99 | 28 33 49 ·9 | 2 ·15 |
| 5 | 6 1 31 ·01 | 28 33 37 ·0 | 3 ·93 |
| 6 | 6 4 3 ·92 | 28 33 13 ·4 | 5 ·73 |
| 7 | 6 6 36 ·73 | 28 32 39 ·0 | 7 ·50 |
| 8 | 6 9 9 ·41 | 28 31 54 ·0 | 9 ·27 |
| 9 | 6 11 41 ·97 | 28 30 58 ·4 | 11 ·05 |
| 10 | 6 14 14 ·39 | 28 29 52 ·1 | 12 ·82 |
| 11 | 6 16 46 ·66 | 28 28 35 ·2 | 14 ·57 |
| 12 | 6 19 18 ·78 | 28 27 7 ·8 | 16 ·33 |
| 13 | 6 21 50 ·73 | 28 25 29 ·8 | 18 ·08 |
| 14 | 6 24 22 ·52 | 28 23 41 ·3 | 19 ·82 |
| 15 | 6 26 54 ·12 | 28 21 42 ·4 | 21 ·55 |
| 16 | 6 29 25 ·53 | 28 19 33 ·1 | 23 ·28 |
| 17 | 6 31 56 ·74 | 28 17 13 ·4 | 25 ·02 |
| 18 | 6 34 27 ·75 | 28 14 43 ·3 | 26 ·72 |
| 19 | 6 36 58 ·54 | 28 12 3 ·0 | 28 ·42 |
| 20 | 6 39 29 ·12 | 28 9 12 ·5 | 30 ·12 |
| 21 | 6 41 59 ·46 | 28 6 11 ·8 | 31 ·82 |
| 22 | 6 44 29 ·57 | 28 3 0 ·9 | 33 ·48 |
| 23 | 6 46 59 ·43 | 27 59 40 ·0 | 35 ·17 |
| 24 | 6 49 29 ·04 | N.27 56 9 ·0 | |

| Hour. | Right Ascension. | Declination. |
|---|---|---|
| | *SUNDAY* 27. | |
| | h m s | ° ′ ″ |
| 0 | 6 49 29 ·04 | N.27 56 9 ·0 |
| 1 | 6 51 58 ·39 | 27 52 28 ·1 |
| 2 | 6 54 27 ·47 | 27 48 37 ·2 |
| 3 | 6 56 56 ·28 | 27 44 36 ·6 |
| 4 | 6 59 24 ·81 | 27 40 26 ·1 |
| 5 | 7 1 53 ·05 | 27 36 5 ·8 |
| 6 | 7 4 20 ·99 | 27 31 36 ·0 |
| 7 | 7 6 48 ·64 | 27 26 56 ·5 |
| 8 | 7 9 15 ·98 | 27 22 7 ·4 |
| 9 | 7 11 43 ·01 | 27 17 8 ·9 |
| 10 | 7 14 9 ·72 | 27 12 0 ·9 |
| 11 | 7 16 36 ·11 | 27 6 43 ·7 |
| 12 | 7 19 2 ·16 | 27 1 17 ·1 |
| 13 | 7 21 27 ·88 | 26 55 41 ·3 |
| 14 | 7 23 53 ·25 | 26 49 56 ·4 |
| 15 | 7 26 18 ·28 | 26 44 2 ·4 |
| 16 | 7 28 42 ·96 | 26 37 59 ·5 |
| 17 | 7 31 7 ·28 | 26 31 47 ·6 |
| 18 | 7 33 31 ·25 | 26 25 27 ·0 |
| 19 | 7 35 54 ·85 | 26 18 57 ·6 |
| 20 | 7 38 18 ·08 | 26 12 19 ·5 |
| 21 | 7 40 40 ·94 | 26 5 32 ·8 |
| 22 | 7 43 3 ·42 | 25 58 37 ·6 |
| 23 | 7 45 25 ·52 | N.25 51 34 ·0 |
| | *MONDAY* 28. | |
| 0 | 7 47 47 ·24 | N.25 44 22 ·1 |
| 1 | 7 50 8 ·57 | 25 37 1 ·9 |
| 2 | 7 52 29 ·51 | 25 29 33 ·6 |
| 3 | 7 54 50 ·05 | 25 21 57 ·1 |
| 4 | 7 57 10 ·20 | 25 14 12 ·7 |
| 5 | 7 59 29 ·95 | 25 6 20 ·3 |
| 6 | 8 1 49 ·30 | 24 58 20 ·1 |
| 7 | 8 4 8 ·25 | 24 50 12 ·1 |
| 8 | 8 6 26 ·79 | 24 41 56 ·5 |
| 9 | 8 8 44 ·92 | 24 33 33 ·2 |
| 10 | 8 11 2 ·64 | 24 25 2 ·5 |
| 11 | 8 13 19 ·96 | 24 16 24 ·3 |
| 12 | 8 15 36 ·86 | 24 7 38 ·8 |
| 13 | 8 17 53 ·35 | 23 58 46 ·0 |
| 14 | 8 20 9 ·42 | 23 49 46 ·1 |
| 15 | 8 22 25 ·08 | 23 40 39 ·1 |
| 16 | 8 24 40 ·32 | 23 31 25 ·1 |
| 17 | 8 26 55 ·14 | 23 22 4 ·2 |
| 18 | 8 29 9 ·55 | 23 12 36 ·5 |
| 19 | 8 31 23 ·54 | 23 3 2 ·2 |
| 20 | 8 33 37 ·11 | 22 53 21 ·1 |
| 21 | 8 35 50 ·26 | 22 43 33 ·6 |
| 22 | 8 38 2 ·99 | 22 33 39 ·6 |
| 23 | 8 40 15 ·31 | 22 23 39 ·2 |
| 24 | 8 42 27 ·20 | N.22 13 32 ·6 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 29. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 8 42 27·20 | N.22 13 32·6 | 102·13 |
| 1 | 8 44 38·68 | 22 3 19·8 | 103·13 |
| 2 | 8 46 49·73 | 21 53 1·0 | 104·15 |
| 3 | 8 49 0·37 | 21 42 36·1 | 105·13 |
| 4 | 8 51 10·60 | 21 32 5·3 | 106·10 |
| 5 | 8 53 20·41 | 21 21 28·7 | 107·07 |
| 6 | 8 55 29·81 | 21 10 46·3 | 108·00 |
| 7 | 8 57 38·80 | 20 59 58·3 | 108·93 |
| 8 | 8 59 47·38 | 20 49 4·7 | 109·85 |
| 9 | 9 1 55·55 | 20 38 5·6 | 110·75 |
| 10 | 9 4 3·31 | 20 27 1·1 | 111·63 |
| 11 | 9 6 10·66 | 20 15 51·3 | 112·52 |
| 12 | 9 8 17·61 | 20 4 36·2 | 113·37 |
| 13 | 9 10 24·16 | 19 53 16·0 | 114·22 |
| 14 | 9 12 30·31 | 19 41 50·7 | 115·05 |
| 15 | 9 14 36·06 | 19 30 20·4 | 115·87 |
| 16 | 9 16 41·41 | 19 18 45·2 | 116·67 |
| 17 | 9 18 46·37 | 19 7 5·2 | 117·45 |
| 18 | 9 20 50·94 | 18 55 20·5 | 118·23 |
| 19 | 9 22 55·12 | 18 43 31·1 | 118·98 |
| 20 | 9 24 58·91 | 18 31 37·2 | 119·73 |
| 21 | 9 27 2·32 | 18 19 38·8 | 120·48 |
| 22 | 9 29 5·35 | 18 7 35·9 | 121·18 |
| 23 | 9 31 8·00 | N.17 55 28·8 | 121·90 |
| | *WEDNESDAY* 30. | | |
| 0 | 9 33 10·27 | N.17 43 17·4 | 122·58 |
| 1 | 9 35 12·17 | 17 31 1·9 | 123·27 |
| 2 | 9 37 13·70 | 17 18 42·3 | 123·93 |
| 3 | 9 39 14·86 | 17 6 18·7 | 124·60 |
| 4 | 9 41 15·66 | 16 53 51·1 | 125·23 |
| 5 | 9 43 16·10 | 16 41 19·7 | 125·87 |
| 6 | 9 45 16·18 | 16 28 44·5 | 126·47 |
| 7 | 9 47 15·91 | 16 16 5·7 | 127·08 |
| 8 | 9 49 15·28 | 16 3 23·2 | 127·68 |
| 9 | 9 51 14·31 | 15 50 37·1 | 128·25 |
| 10 | 9 53 13·00 | 15 37 47·6 | 128·82 |
| 11 | 9 55 11·35 | 15 24 54·7 | 129·38 |
| 12 | 9 57 9·36 | 15 11 58·4 | 129·92 |
| 13 | 9 59 7·04 | 14 58 58·9 | 130·47 |
| 14 | 10 1 4·39 | 14 45 56·1 | 130·97 |
| 15 | 10 3 1·41 | 14 32 50·3 | 131·48 |
| 16 | 10 4 58·12 | 14 19 41·4 | 131·98 |
| 17 | 10 6 54·50 | 14 6 29·5 | 132·45 |
| 18 | 10 8 50·57 | 13 53 14·8 | 132·93 |
| 19 | 10 10 46·34 | 13 39 57·2 | 133·38 |
| 20 | 10 12 41·79 | 13 26 36·9 | 133·85 |
| 21 | 10 14 36·95 | 13 13 13·8 | 134·27 |
| 22 | 10 16 31·81 | 12 59 48·2 | 134·70 |
| 23 | 10 18 26·37 | 12 46 20·0 | 135·12 |
| 24 | 10 20 20·64 | N.12 32 49·3 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *THURSDAY* 31. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 10 20 20·64 | N.12 32 49·3 | 135·52 |
| 1 | 10 22 14·62 | 12 19 16·2 | 135·90 |
| 2 | 10 24 8·33 | 12 5 40·8 | 136·30 |
| 3 | 10 26 1·76 | 11 52 3·0 | 136·65 |
| 4 | 10 27 54·91 | 11 38 23·1 | 137·02 |
| 5 | 10 29 47·79 | 11 24 41·0 | 137·37 |
| 6 | 10 31 40·41 | 11 10 56·8 | 137·72 |
| 7 | 10 33 32·77 | 10 57 10·5 | 138·03 |
| 8 | 10 35 24·87 | 10 43 22·3 | 138·35 |
| 9 | 10 37 16·71 | 10 29 32·2 | 138·67 |
| 10 | 10 39 8·31 | 10 15 40·2 | 138·97 |
| 11 | 10 40 59·67 | 10 1 46·4 | 139·25 |
| 12 | 10 42 50·78 | 9 47 50·9 | 139·53 |
| 13 | 10 44 41·66 | 9 33 53·7 | 139·82 |
| 14 | 10 46 32·31 | 9 19 54·8 | 140·05 |
| 15 | 10 48 22·73 | 9 5 54·5 | 140·32 |
| 16 | 10 50 12·93 | 8 51 52·6 | 140·57 |
| 17 | 10 52 2·91 | 8 37 49·2 | 140·78 |
| 18 | 10 53 52·67 | 8 23 44·5 | 141·00 |
| 19 | 10 55 42·23 | 8 9 38·5 | 141·22 |
| 20 | 10 57 31·58 | 7 55 31·2 | 141·42 |
| 21 | 10 59 20·73 | 7 41 22·7 | 141·62 |
| 22 | 11 1 9·69 | 7 27 13·0 | 141·80 |
| 23 | 11 2 58·45 | N. 7 13 2·2 | 141·97 |
| | *FRIDAY, FEB.* 1. | | |
| 0 | 11 4 47·03 | N. 6 58 50·4 | |

### PHASES OF THE MOON.

| | | d | h | m |
|---|---|---|---|---|
| ☾ | *Last Quarter* - | 7 | 9 | 4·7 |
| ● | New Moon - - | 15 | 2 | 53·3 |
| ☽ | *First Quarter* - | 21 | 23 | 17·8 |
| ○ | Full Moon - - | 29 | | 8 |

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## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III h. | P.L. of diff. | VI h. | P.L. of diff. | IX h. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 1 | Aldebaran | W. | 52 3 30 | 2733 | 53 39 26 | 2743 | 55 15 9 | 2752 | 56 50 40 | 2761 |
| | Pollux | W. | 8 3 6 | 2745 | 9 38 46 | 2724 | 11 14 54 | 2716 | 12 51 13 | 2715 |
| | Mars | E. | 56 29 41 | 2729 | 54 53 39 | 2743 | 53 17 56 | 2756 | 51 42 30 | 2770 |
| | Jupiter | E. | 78 19 40 | 2662 | 76 42 9 | 2675 | 75 4 56 | 2689 | 73 28 1 | 2702 |
| | Spica ♍ | E. | 83 2 12 | 2624 | 81 23 50 | 2638 | 79 45 47 | 2651 | 78 8 1 | 2665 |
| 2 | Aldebaran | W. | 64 44 53 | 2816 | 66 19 0 | 2828 | 67 52 52 | 2839 | 69 26 29 | 2852 |
| | Pollux | W. | 20 51 35 | 2753 | 22 27 5 | 2763 | 24 2 21 | 2775 | 25 37 21 | 2786 |
| | Mars | E. | 43 49 59 | 2841 | 42 16 24 | 2855 | 40 43 7 | 2870 | 39 10 9 | 2884 |
| | Jupiter | E. | 65 27 59 | 2771 | 63 52 53 | 2785 | 62 18 5 | 2798 | 60 43 34 | 2812 |
| | Spica ♍ | E. | 70 3 46 | 2732 | 68 27 49 | 2746 | 66 52 10 | 2760 | 65 16 50 | 2772 |
| | Saturn | E. | 113 56 52 | 2801 | 112 22 25 | 2813 | 110 48 14 | 2826 | 109 14 20 | 2838 |
| 3 | Aldebaran | W. | 77 10 46 | 2911 | 78 42 51 | 2922 | 80 14 42 | 2934 | 81 46 18 | 2946 |
| | Pollux | W. | 33 28 32 | 2846 | 35 2 0 | 2859 | 36 35 12 | 2870 | 38 8 9 | 2882 |
| | Mars | E. | 31 29 49 | 2955 | 29 58 40 | 2969 | 28 27 48 | 2984 | 26 57 15 | 2998 |
| | Jupiter | E. | 52 55 27 | 2879 | 51 22 41 | 2891 | 49 50 11 | 2905 | 48 17 58 | 2917 |
| | Spica ♍ | E. | 57 24 23 | 2838 | 55 50 45 | 2850 | 54 17 22 | 2863 | 52 44 16 | 2875 |
| | Saturn | E. | 101 28 58 | 2902 | 99 56 42 | 2915 | 98 24 42 | 2927 | 96 52 57 | 2939 |
| | Sun | E. | 138 3 10 | 3245 | 136 37 54 | 3256 | 135 12 51 | 3268 | 133 48 2 | 3279 |
| 4 | Pollux | W. | 45 49 17 | 2937 | 47 20 49 | 2947 | 48 52 8 | 2957 | 50 23 15 | 2966 |
| | Regulus | W. | 9 12 50 | 3031 | 10 42 24 | 3016 | 12 12 17 | 3010 | 13 42 17 | 3010 |
| | Jupiter | E. | 40 40 47 | 2978 | 39 10 6 | 2989 | 37 39 39 | 3000 | 36 9 26 | 3011 |
| | Spica ♍ | E. | 45 2 29 | 2932 | 43 30 51 | 2942 | 41 59 25 | 2953 | 40 28 13 | 2962 |
| | Saturn | E. | 89 17 57 | 2996 | 87 47 39 | 3006 | 86 17 34 | 3017 | 84 47 42 | 3027 |
| | Sun | E. | 126 47 18 | 3335 | 125 23 47 | 3346 | 124 0 29 | 3357 | 122 37 23 | 3367 |
| 5 | Pollux | W. | 57 55 57 | 3009 | 59 25 58 | 3017 | 60 55 49 | 3024 | 62 25 32 | 3030 |
| | Regulus | W. | 21 11 54 | 3026 | 22 41 34 | 3032 | 24 11 7 | 3037 | 25 40 34 | 3042 |
| | Jupiter | E. | 28 41 44 | 3064 | 27 12 50 | 3075 | 25 44 10 | 3086 | 24 15 43 | 3096 |
| | Spica ♍ | E. | 32 55 5 | 3005 | 31 24 58 | 3014 | 29 55 3 | 3021 | 28 25 16 | 3028 |
| | Saturn | E. | 77 21 21 | 3072 | 75 52 37 | 3080 | 74 24 3 | 3088 | 72 55 39 | 3095 |
| | Antares | E. | 78 49 7 | 3006 | 77 19 1 | 3014 | 75 49 5 | 3021 | 74 19 18 | 3027 |
| | Sun | E. | 115 44 36 | 3412 | 114 22 33 | 3419 | 113 0 38 | 3427 | 111 38 52 | 3433 |
| 6 | Pollux | W. | 69 52 17 | 3057 | 71 21 19 | 3061 | 72 50 16 | 3065 | 74 19 9 | 3068 |
| | Regulus | W. | 33 6 23 | 3064 | 34 35 17 | 3067 | 36 4 7 | 3069 | 37 32 54 | 3072 |
| | Saturn | E. | 65 35 38 | 3126 | 64 8 0 | 3130 | 62 40 27 | 3134 | 61 12 59 | 3138 |
| | Antares | E. | 66 52 14 | 3054 | 65 23 8 | 3058 | 63 54 7 | 3062 | 62 25 11 | 3065 |
| | Sun | E. | 104 51 47 | 3462 | 103 30 40 | 3466 | 102 9 38 | 3469 | 100 48 39 | 3472 |
| 7 | Pollux | W. | 81 42 52 | 3075 | 83 11 32 | 3075 | 84 40 12 | 3075 | 86 8 52 | 3074 |
| | Regulus | W. | 44 56 13 | 3078 | 46 24 49 | 3078 | 47 53 26 | 3078 | 49 22 3 | 3076 |
| | Saturn | E. | 53 56 45 | 3153 | 52 29 39 | 3155 | 51 2 36 | 3157 | 49 35 35 | 3158 |
| | Antares | E. | 55 1 12 | 3072 | 53 32 28 | 3073 | 52 3 45 | 3072 | 50 35 1 | 3071 |
| | Sun | E. | 94 4 28 | 3480 | 92 43 41 | 3480 | 91 22 55 | 3479 | 90 2 8 | 3479 |
| 8 | Regulus | W. | 56 45 44 | 3063 | 58 14 39 | 3059 | 59 43 39 | 3055 | 61 12 44 | 3049 |
| | Mars | W. | 27 34 23 | 3170 | 29 1 8 | 3163 | 30 28 1 | 3157 | 31 55 1 | 3151 |
| | Saturn | E. | 42 20 41 | 3160 | 40 53 44 | 3159 | 39 26 46 | 3159 | 37 59 48 | 3159 |
| | Antares | E. | 43 10 53 | 3059 | 41 41 53 | 3055 | 40 12 48 | 3051 | 38 43 38 | 3046 |
| | Sun | E. | 83 17 44 | 3465 | 81 56 41 | 3461 | 80 35 33 | 3456 | 79 14 20 | 3451 |

## MEAN TIME.

### LUNAR DISTANCES.

| Star's Name and Position. | | Midnight. | P.L. of diff. | XV h. | P.L. of diff. | XVIII h. | P.L. of diff. | XXI h. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| debaran | W. | 58 25 59 | 2772 | 60 1 3 | 2782 | 61 35 54 | 2793 | 63 10 31 | 2804 |
| llux | W. | 14 27 33 | 2718 | 16 3 49 | 2725 | 17 39 56 | 2733 | 19 15 52 | 2743 |
| ars | E. | 50 7 23 | 2785 | 48 32 35 | 2798 | 46 58 4 | 2813 | 45 23 53 | 2826 |
| piter | E. | 71 51 24 | 2716 | 70 15 5 | 2730 | 68 39 5 | 2744 | 67 3 23 | 2757 |
| ica ♍ | E. | 76 30 34 | 2678 | 74 53 24 | 2692 | 73 16 33 | 2705 | 71 40 0 | 2719 |
| debaran | W. | 70 59 50 | 2863 | 72 32 57 | 2875 | 74 5 48 | 2886 | 75 38 25 | 2898 |
| llux | W. | 27 12 7 | 2799 | 28 46 36 | 2810 | 30 20 51 | 2823 | 31 54 49 | 2835 |
| ars | E. | 37 37 29 | 2898 | 36 5 7 | 2912 | 34 33 3 | 2926 | 33 1 17 | 2940 |
| piter | E. | 59 9 22 | 2826 | 57 35 28 | 2838 | 56 1 50 | 2852 | 54 28 30 | 2866 |
| ica ♍ | E. | 63 41 46 | 2785 | 62 6 59 | 2799 | 60 32 30 | 2812 | 58 58 18 | 2825 |
| turn | E. | 107 40 42 | 2852 | 106 7 21 | 2865 | 104 34 17 | 2878 | 103 1 30 | 2890 |
| debaran | W. | 83 17 39 | 2957 | 84 48 46 | 2968 | 86 19 39 | 2979 | 87 50 18 | 2990 |
| llux | W. | 39 40 51 | 2893 | 41 13 19 | 2905 | 42 45 32 | 2916 | 44 17 31 | 2926 |
| ars | E. | 25 27 0 | 3013 | 23 57 4 | 3029 | 22 27 27 | 3044 | 20 58 9 | 3061 |
| piter | E. | 46 46 1 | 2930 | 45 14 20 | 2942 | 43 42 54 | 2954 | 42 11 43 | 2966 |
| ica ♍ | E. | 51 11 25 | 2887 | 49 38 49 | 2898 | 48 6 28 | 2910 | 46 34 22 | 2920 |
| turn | E. | 95 21 28 | 2951 | 93 50 14 | 2962 | 92 19 14 | 2974 | 90 48 29 | 2985 |
| N | E. | 132 23 26 | 3291 | 130 59 4 | 3303 | 129 34 56 | 3313 | 128 11 0 | 3325 |
| llux | W. | 51 54 10 | 2976 | 53 24 53 | 2985 | 54 55 25 | 2993 | 56 25 46 | 3001 |
| gulus | W. | 15 12 18 | 3010 | 16 42 19 | 3013 | 18 12 16 | 3017 | 19 42 8 | 3022 |
| piter | E. | 34 39 27 | 3022 | 33 9 42 | 3032 | 31 40 9 | 3043 | 30 10 50 | 3054 |
| ica ♍ | E. | 38 57 12 | 2972 | 37 26 24 | 2981 | 35 55 47 | 2989 | 34 25 21 | 2997 |
| turn | E. | 83 18 3 | 3037 | 81 48 36 | 3046 | 80 19 20 | 3055 | 78 50 15 | 3064 |
| N | E. | 121 14 29 | 3376 | 119 51 45 | 3386 | 118 29 12 | 3394 | 117 6 49 | 3403 |
| llux | W. | 63 55 7 | 3036 | 65 24 35 | 3043 | 66 53 55 | 3048 | 68 23 9 | 3052 |
| gulus | W. | 27 9 55 | 3046 | 28 39 11 | 3051 | 30 8 20 | 3056 | 31 37 24 | 3060 |
| piter | E. | 22 47 29 | 3107 | 21 19 28 | 3120 | 19 51 43 | 3133 | 18 24 13 | 3147 |
| ica ♍ | E. | 26 55 38 | 3033 | 25 26 6 | 3039 | 23 56 42 | 3044 | 22 27 24 | 3050 |
| turn | E. | 71 27 23 | 3102 | 69 59 16 | 3108 | 68 31 16 | 3114 | 67 3 23 | 3120 |
| tares | E. | 72 49 39 | 3033 | 71 20 7 | 3039 | 69 50 43 | 3044 | 68 21 25 | 3050 |
| N | E. | 110 17 13 | 3440 | 108 55 42 | 3447 | 107 34 18 | 3452 | 106 13 0 | 3456 |
| llux | W. | 75 47 58 | 3069 | 77 16 45 | 3072 | 78 45 29 | 3074 | 80 14 11 | 3074 |
| gulus | W. | 39 1 38 | 3074 | 40 30 19 | 3076 | 41 58 58 | 3077 | 43 27 36 | 3078 |
| turn | E. | 59 45 36 | 3143 | 58 18 18 | 3146 | 56 51 4 | 3148 | 55 23 53 | 3151 |
| tares | E. | 60 56 18 | 3068 | 59 27 29 | 3069 | 57 58 42 | 3070 | 56 29 56 | 3072 |
| N | E. | 99 27 44 | 3475 | 98 6 52 | 3477 | 96 46 2 | 3479 | 95 25 14 | 3480 |
| llux | W. | 87 37 34 | 3073 | 89 6 17 | 3070 | 90 35 3 | 3068 | 92 3 52 | 3065 |
| gulus | W. | 50 50 42 | 3074 | 52 19 23 | 3072 | 53 48 7 | 3069 | 55 16 54 | 3067 |
| turn | E. | 48 8 35 | 3158 | 46 41 36 | 3158 | 45 14 37 | 3159 | 43 47 39 | 3159 |
| tares | E. | 49 6 16 | 3070 | 47 37 30 | 3068 | 46 8 41 | 3065 | 44 39 49 | 3062 |
| N | E. | 88 41 20 | 3477 | 87 20 30 | 3475 | 85 59 38 | 3472 | 84 38 43 | 3469 |
| gulus | W. | 62 41 56 | 3043 | 64 11 15 | 3038 | 65 40 41 | 3031 | 67 10 15 | 3025 |
| ars | W. | 33 22 9 | 3143 | 34 49 27 | 3136 | 36 16 53 | 3128 | 37 44 29 | 3120 |
| turn | E. | 36 32 50 | 3159 | 35 5 52 | 3160 | 33 38 55 | 3161 | 32 11 | |
| tares | E. | 37 14 22 | 3040 | 35 44 59 | 3034 | 34 15 29 | 3027 | 32 | |
| N | E. | 77 53 1 | 3446 | 76 31 36 | 3439 | 75 10 3 | 3432 | 7* | |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III h. | P.L. of diff. | VI h. | P.L. of diff. | IX h. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ |
| 9 | Regulus | W. | 68 39 57 | 3017 | 70 9 48 | 3010 | 71 39 48 | 3002 | 73 9 59 |
| | Mars | W. | 39 12 14 | 3111 | 40 40 10 | 3102 | 42 8 17 | 3093 | 43 36 35 |
| | Jupiter | W. | 18 55 44 | 3096 | 20 23 59 | 3081 | 21 52 32 | 3067 | 23 21 22 |
| | Saturn | E. | 30 45 4 | 3164 | 29 18 12 | 3167 | 27 51 24 | 3172 | 26 24 41 |
| | Antares | E. | 31 16 4 | 3014 | 29 46 9 | 3007 | 28 16 5 | 2999 | 26 45 51 |
| | Sun | E. | 72 26 35 | 3417 | 71 4 38 | 3409 | 69 42 32 | 3401 | 68 20 16 |
| 10 | Mars | W. | 51 1 10 | 3030 | 52 30 45 | 3018 | 54 0 35 | 3006 | 55 30 40 |
| | Jupiter | W. | 30 49 35 | 2989 | 32 20 2 | 2977 | 33 50 44 | 2964 | 35 21 42 |
| | Spica ♍ | W. | 26 42 15 | 2941 | 28 13 42 | 2931 | 29 45 21 | 2920 | 31 17 13 |
| | Antares | E. | 19 11 49 | 2942 | 17 40 23 | 2931 | 16 8 44 | 2920 | 14 36 50 |
| | Sun | E. | 61 26 12 | 3340 | 60 2 47 | 3329 | 58 39 9 | 3317 | 57 15 17 |
| 11 | Mars | W. | 63 5 2 | 2928 | 64 36 45 | 2915 | 66 8 45 | 2901 | 67 41 3 |
| | Jupiter | W. | 43 0 46 | 2883 | 44 33 27 | 2869 | 46 6 25 | 2855 | 47 39 42 |
| | Spica ♍ | W. | 39 0 33 | 2847 | 40 34 0 | 2833 | 42 7 45 | 2820 | 43 41 47 |
| | Sun | E. | 50 12 25 | 3242 | 48 47 5 | 3229 | 47 21 30 | 3215 | 45 55 38 |
| 12 | Mars | W. | 75 27 13 | 2813 | 77 1 24 | 2798 | 78 35 55 | 2782 | 80 10 40 |
| | Jupiter | W. | 55 30 48 | 2768 | 57 5 58 | 2752 | 58 41 29 | 2738 | 60 17 19 |
| | Spica ♍ | W. | 51 36 27 | 2736 | 53 12 19 | 2722 | 54 48 30 | 2708 | 56 25 [illegible] |
| | Sun | E. | 38 42 19 | 3134 | 37 14 50 | 3121 | 35 47 6 | 3108 | 34 19 [illegible] |
| 17 | Sun | W. | 24 36 52 | 2674 | 26 14 7 | 2660 | 27 51 41 | 2649 | 29 29 29 |
| | α Arietis | E. | 74 59 30 | 2311 | 73 13 46 | 2306 | 71 27 55 | 2302 | 69 41 58 |
| | Aldebaran | E. | 105 56 14 | 2353 | 104 11 32 | 2346 | 102 26 40 | 2341 | 100 41 41 |
| 18 | Sun | W. | 37 41 25 | 2604 | 39 20 14 | 2600 | 40 59 9 | 2596 | 42 38 9 |
| | α Arietis | E. | 60 51 17 | 2289 | 59 5 2 | 2289 | 57 18 47 | 2289 | 55 32 31 |
| | Aldebaran | E. | 91 55 13 | 2320 | 90 9 42 | 2318 | 88 24 9 | 2316 | 86 38 33 |
| 19 | Sun | W. | 50 53 57 | 2585 | 52 33 12 | 2585 | 54 12 27 | 2586 | 55 51 41 |
| | α Arietis | E. | 46 41 49 | 2303 | 44 55 54 | 2307 | 43 10 5 | 2313 | 41 24 24 |
| | Aldebaran | E. | 77 50 31 | 2318 | 76 4 58 | 2321 | 74 19 29 | 2323 | 72 34 3 |
| 20 | Sun | W. | 64 7 32 | 2594 | 65 46 35 | 2596 | 67 25 35 | 2600 | 69 4 30 |
| | Fomalhaut | W. | 38 23 28 | 2920 | 39 55 21 | 2875 | 41 28 12 | 2837 | 43 1 52 |
| | α Arietis | E. | 32 38 45 | 2368 | 30 54 24 | 2382 | 29 10 24 | 2400 | 27 26 49 |
| | Aldebaran | E. | 63 48 6 | 2347 | 62 3 15 | 2353 | 60 18 32 | 2359 | 58 33 58 |
| 21 | Sun | W. | 77 18 2 | 2620 | 78 56 30 | 2625 | 80 34 51 | 2629 | 82 13 7 |
| | Fomalhaut | W. | 50 59 40 | 2688 | 52 36 36 | 2673 | 54 13 52 | 2661 | 55 51 24 |
| | α Pegasi | W. | 31 36 18 | 3401 | 32 58 33 | 3304 | 34 22 40 | 3219 | 35 48 27 |
| | Aldebaran | E. | 49 53 55 | 2410 | 48 10 35 | 2421 | 46 27 30 | 2433 | 44 44 43 |
| | Pollux | E. | 92 37 42 | 2287 | 90 51 23 | 2291 | 89 5 10 | 2295 | 87 19 3 |
| 22 | Sun | W. | 90 22 53 | 2658 | 92 0 30 | 2663 | 93 38 0 | 2668 | 95 15 23 |
| | Fomalhaut | W. | 64 2 7 | 2616 | 65 40 40 | 2614 | 67 19 16 | 2611 | 68 57 56 |
| | α Pegasi | W. | 43 15 39 | 2909 | 44 47 47 | 2878 | 46 20 34 | 2852 | 47 53 55 |
| | Aldebaran | E. | 36 16 9 | 2538 | 34 35 48 | 2563 | 32 56 2 | 2591 | 31 16 55 |
| | Pollux | E. | 78 30 6 | 2322 | 76 44 39 | 2327 | 74 59 19 | 2333 | 73 14 7 |
| 23 | Sun | W. | 103 20 27 | 2702 | 104 57 5 | 2708 | 106 33 35 | 2714 | 108 9 57 |
| | Fomalhaut | W. | 77 11 26 | 2612 | 78 50 4 | 2615 | 80 28 39 | 2618 | 82 7 9 |
| | α Pegasi | W. | 55 46 59 | 2751 | 57 22 31 | 2742 | 58 58 15 | 2734 | 60 34 16 |

## MEAN TIME.

### LUNAR DISTANCES.

| the Month. | Star's Name and Position. | | Midnight. | P.L. of diff. | XV h. | P.L. of diff. | XVIII h. | P.L. of diff. | XXI h. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 9 | Regulus | W. | 74 40 20 | 2984 | 76 10 53 | 2975 | 77 41 37 | 2965 | 79 12 34 | 2955 |
| | Mars | W. | 45 5 4 | 3074 | 46 33 46 | 3064 | 48 2 40 | 3052 | 49 31 48 | 3041 |
| | Jupiter | W. | 24 50 29 | 3041 | 26 19 51 | 3027 | 27 49 30 | 3014 | 29 19 25 | 3002 |
| | Saturn | E. | 24 58 7 | 3188 | 23 31 44 | 3201 | 22 5 36 | 3218 | 20 39 48 | 3241 |
| | Antares | E. | 25 15 26 | 2981 | 23 44 50 | 2972 | 22 14 2 | 2962 | 20 43 2 | 2952 |
| | Sun | E. | 66 57 49 | 3382 | 65 35 12 | 3372 | 64 12 24 | 3362 | 62 49 24 | 3351 |
| 0 | Mars | W. | 57 1 0 | 2981 | 58 31 36 | 2969 | 60 2 28 | 2955 | 61 33 37 | 2942 |
| | Jupiter | W. | 36 52 57 | 2937 | 38 24 29 | 2924 | 39 56 17 | 2910 | 41 28 23 | 2897 |
| | Spica ♍ | W. | 32 49 24 | 2897 | 34 21 47 | 2884 | 35 54 26 | 2872 | 37 27 21 | 2859 |
| | Antares | E. | 13 4 42 | 2898 | 11 32 20 | 2885 | 9 59 42 | 2873 | 8 26 48 | 2861 |
| | Sun | E. | 55 51 12 | 3293 | 54 26 52 | 3281 | 53 2 18 | 3268 | 51 37 29 | 3255 |
| 1 | Mars | W. | 69 13 40 | 2872 | 70 46 35 | 2857 | 72 19 49 | 2843 | 73 53 21 | 2828 |
| | Jupiter | W. | 49 13 17 | 2826 | 50 47 11 | 2811 | 52 21 24 | 2797 | 53 55 56 | 2782 |
| | Spica ♍ | W. | 45 16 7 | 2793 | 46 50 44 | 2779 | 48 25 40 | 2765 | 50 0 54 | 2750 |
| | Sun | E. | 44 29 31 | 3188 | 43 3 7 | 3174 | 41 36 27 | 3161 | 40 9 31 | 3148 |
| 2 | Mars | W. | 81 45 57 | 2753 | 83 21 27 | 2738 | 84 57 17 | 2723 | 86 33 27 | 2707 |
| | Jupiter | W. | 61 53 28 | 2708 | 63 29 58 | 2693 | 65 6 47 | 2678 | 66 43 57 | 2663 |
| | Spica ♍ | W. | 58 1 49 | 2678 | 59 38 58 | 2664 | 61 16 26 | 2649 | 62 54 14 | 2635 |
| | Sun | E. | 32 50 50 | 3083 | 31 22 20 | 3072 | 29 53 36 | 3061 | 28 24 38 | 3051 |
| 7 | Sun | W. | 31 7 31 | 2630 | 32 45 45 | 2622 | 34 24 10 | 2615 | 36 2 44 | 2610 |
| | α Arietis | E. | 67 55 57 | 2296 | 66 9 52 | 2294 | 64 23 43 | 2292 | 62 37 31 | 2290 |
| | Aldebaran | E. | 98 56 35 | 2332 | 97 11 22 | 2328 | 95 26 4 | 2324 | 93 40 40 | 2322 |
| 8 | Sun | W. | 44 17 13 | 2590 | 45 56 21 | 2589 | 47 35 31 | 2587 | 49 14 44 | 2587 |
| | α Arietis | E. | 53 46 17 | 2291 | 52 0 5 | 2293 | 50 13 56 | 2296 | 48 27 50 | 2299 |
| | Aldebaran | E. | 84 52 57 | 2315 | 83 7 19 | 2315 | 81 21 42 | 2316 | 79 36 6 | 2317 |
| 9 | Sun | W. | 57 30 55 | 2588 | 59 10 7 | 2588 | 60 49 18 | 2590 | 62 28 26 | 2592 |
| | α Arietis | E. | 39 38 52 | 2326 | 37 53 31 | 2334 | 36 8 21 | 2344 | 34 23 25 | 2355 |
| | Aldebaran | E. | 70 48 40 | 2329 | 69 3 23 | 2333 | 67 18 11 | 2337 | 65 33 5 | 2342 |
| 0 | Sun | W. | 70 43 22 | 2606 | 72 22 9 | 2609 | 74 0 52 | 2612 | 75 39 30 | 2617 |
| | Fomalhaut | W. | 44 36 18 | 2772 | 46 11 22 | 2747 | 47 47 0 | 2725 | 49 23 7 | 2705 |
| | α Arietis | E. | 25 43 43 | 2445 | 24 1 12 | 2474 | 22 19 23 | 2511 | 20 38 25 | 2557 |
| | Aldebaran | E. | 56 49 35 | 2373 | 55 5 21 | 2382 | 53 21 20 | 2390 | 51 37 31 | 2399 |
| 1 | Sun | W. | 83 51 17 | 2637 | 85 29 21 | 2643 | 87 7 18 | 2647 | 88 45 9 | 2652 |
| | Fomalhaut | W. | 57 29 11 | 2641 | 59 7 11 | 2632 | 60 45 22 | 2626 | 62 23 41 | 2621 |
| | α Pegasi | W. | 37 15 40 | 3084 | 38 44 9 | 3031 | 40 13 43 | 2984 | 41 44 16 | 2944 |
| | Aldebaran | E. | 43 2 14 | 2461 | 41 20 6 | 2477 | 39 38 21 | 2495 | 37 57 1 | 2515 |
| | Pollux | E. | 85 33 2 | 2304 | 83 47 8 | 2309 | 82 1 21 | 2313 | 80 15 40 | 2317 |
| 2 | Sun | W. | 96 52 39 | 2678 | 98 29 48 | 2685 | 100 6 48 | 2690 | 101 43 42 | 2696 |
| | Fomalhaut | W. | 70 36 38 | 2609 | 72 15 21 | 2609 | 73 54 4 | 2610 | 75 32 46 | 2611 |
| | α Pegasi | W. | 49 27 46 | 2808 | 51 2 3 | 2792 | 52 36 42 | 2776 | 54 11 42 | 2763 |
| | Aldebaran | E. | 29 38 33 | 2662 | 28 1 2 | 2707 | 26 24 31 | 2759 | 24 49 9 | 2822 |
| | Pollux | E. | 71 29 2 | 2343 | 69 44 5 | 2348 | 67 59 15 | 2353 | 66 14 32 | 2359 |
| 3 | Sun | W. | 109 46 11 | 2726 | 111 22 16 | 2732 | 112 58 13 | 2738 | 114 34 2 | 2746 |
| | Fomalhaut | W. | 83 45 35 | 2626 | 85 23 55 | 2630 | 87 2 9 | 2636 | 88 40 15 | 2641 |
| | α Pegasi | W. | 62 10 13 | 2722 | 63 46 24 | 2717 | 65 22 41 | 2714 | 66 59 2 | 2712 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III h. | P.L. of diff. | VI h. | P.L. of diff. | IX h. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ |
| 23 | Aldebaran | E. | 23 15 10 | 2899 | 21 42 50 | 2993 | 20 12 29 | 3113 | 18 44 35 |
| | Pollux | E. | 64 29 58 | 2364 | 62 45 31 | 2370 | 61 1 13 | 2375 | 59 17 [illegible] |
| 24 | Sun | W. | 116 9 41 | 2751 | 117 45 13 | 2759 | 119 20 35 | 2766 | 120 55 48 |
| | α Pegasi | W. | 68 35 26 | 2711 | 70 11 51 | 2710 | 71 48 18 | 2710 | 73 24 44 |
| | α Arietis | W. | 25 5 54 | 2569 | 26 45 33 | 2555 | 28 25 30 | 2547 | 30 5 38 |
| | Pollux | E. | 50 38 16 | 2410 | 48 54 56 | 2417 | 47 11 45 | 2423 | 45 28 43 |
| | Regulus | E. | 87 25 46 | 2408 | 85 42 23 | 2414 | 83 59 9 | 2421 | 82 16 [illegible] |
| 25 | Sun | W. | 128 49 36 | 2809 | 130 23 52 | 2817 | 131 57 58 | 2825 | 133 31 54 |
| | α Pegasi | W. | 81 26 21 | 2725 | 83 2 28 | 2730 | 84 38 28 | 2735 | 86 14 22 |
| | α Arietis | W. | 38 27 50 | 2530 | 40 8 21 | 2532 | 41 48 49 | 2535 | 43 29 14 |
| | Pollux | E. | 36 55 54 | 2464 | 35 13 50 | 2470 | 33 31 55 | 2478 | 31 50 11 |
| | Regulus | E. | 73 42 50 | 2459 | 72 0 39 | 2465 | 70 18 36 | 2472 | 68 36 44 |
| | Mars | E. | 105 41 37 | 2488 | 104 0 7 | 2495 | 102 18 46 | 2500 | 100 37 33 |
| 26 | α Arietis | W. | 51 50 9 | 2558 | 53 30 1 | 2564 | 55 9 46 | 2569 | 56 49 23 |
| | Aldebaran | W. | 22 35 4 | 3009 | 24 5 6 | 2954 | 25 36 16 | 2911 | 27 8 21 |
| | Regulus | E. | 60 9 46 | 2514 | 58 28 53 | 2522 | 56 48 10 | 2530 | 55 7 38 |
| | Mars | E. | 92 13 44 | 2540 | 90 33 26 | 2547 | 88 53 18 | 2553 | 87 13 19 |
| | Jupiter | E. | 110 52 59 | 2526 | 109 12 22 | 2534 | 107 31 56 | 2540 | 105 51 39 |
| 27 | α Arietis | W. | 65 5 21 | 2609 | 66 44 4 | 2616 | 68 22 37 | 2623 | 70 1 1 |
| | Aldebaran | W. | 34 57 6 | 2787 | 36 31 51 | 2780 | 38 6 45 | 2774 | 39 41 47 |
| | Regulus | E. | 46 47 41 | 2578 | 45 8 16 | 2586 | 43 29 2 | 2595 | 41 50 [illegible] |
| | Mars | E. | 78 55 59 | 2599 | 77 17 2 | 2607 | 75 38 17 | 2615 | 73 59 42 |
| | Jupiter | E. | 97 32 51 | 2587 | 95 53 38 | 2594 | 94 14 35 | 2603 | 92 35 44 |
| 28 | α Arietis | W. | 78 10 13 | 2673 | 79 47 29 | 2681 | 81 24 34 | 2691 | 83 1 26 |
| | Aldebaran | W. | 47 37 36 | 2771 | 49 12 42 | 2774 | 50 47 44 | 2777 | 52 22 42 |
| | Regulus | E. | 33 37 57 | 2651 | 32 0 11 | 2661 | 30 22 38 | 2671 | 28 45 20 |
| | Mars | E. | 65 49 42 | 2666 | 64 12 17 | 2676 | 62 35 5 | 2685 | 60 58 [illegible] |
| | Jupiter | E. | 84 24 24 | 2655 | 82 46 44 | 2664 | 81 9 16 | 2673 | 79 32 [illegible] |
| | Spica ♍ | E. | 87 35 48 | 2642 | 85 57 50 | 2652 | 84 20 5 | 2661 | 82 42 31 |
| 29 | Aldebaran | W. | 60 15 49 | 2811 | 61 50 2 | 2819 | 63 24 5 | 2826 | 64 57 59 |
| | Pollux | W. | 16 19 41 | 2750 | 17 55 15 | 2755 | 19 30 42 | 2760 | 21 6 [illegible] |
| | Mars | E. | 52 56 15 | 2743 | 51 20 32 | 2753 | 49 45 3 | 2763 | 48 9 47 |
| | Jupiter | E. | 71 28 52 | 2731 | 69 52 54 | 2741 | 68 17 8 | 2751 | 66 41 30 |
| | Spica ♍ | E. | 74 37 58 | 2719 | 73 1 43 | 2728 | 71 25 40 | 2738 | 69 49 51 |
| 30 | Aldebaran | W. | 72 44 53 | 2876 | 74 17 43 | 2884 | 75 50 22 | 2894 | 77 22 48 |
| | Pollux | W. | 29 0 10 | 2809 | 30 34 26 | 2818 | 32 8 30 | 2828 | 33 42 29 |
| | Mars | E. | 40 16 58 | 2829 | 38 43 8 | 2840 | 37 9 32 | 2852 | 35 36 11 |
| | Jupiter | E. | 58 47 15 | 2812 | 57 13 3 | 2823 | 55 39 5 | 2833 | 54 5 20 |
| | Spica ♍ | E. | 61 54 0 | 2798 | 60 19 30 | 2808 | 58 45 13 | 2819 | 57 11 10 |
| | Saturn | E. | 108 23 4 | 2857 | 106 49 50 | 2867 | 105 16 49 | 2877 | 103 44 [illegible] |
| 31 | Aldebaran | W. | 85 2 5 | 2950 | 86 33 21 | 2959 | 88 4 25 | 2969 | 89 35 17 |
| | Pollux | W. | 41 28 41 | 2884 | 43 1 21 | 2893 | 44 33 49 | 2903 | 46 6 [illegible] |
| | Mars | E. | 27 53 25 | 2928 | 26 21 42 | 2944 | 24 50 19 | 2961 | 23 19 17 |
| | Jupiter | E. | 46 19 57 | 2896 | 44 47 33 | 2906 | 43 15 22 | 2916 | 41 43 2[illegible] |
| | Spica ♍ | E. | 49 24 4 | 2878 | 47 51 17 | 2887 | 46 18 42 | 2897 | 44 46 1[illegible] |
| | Saturn | E. | 96 2 58 | 2935 | 94 31 23 | 2944 | 93 0 0 | 2953 | 91 28 4[illegible] |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Midnight. | P.L. of diff. | XV h. | P.L. of diff. | XVIII h. | P.L. of diff. | XXI h. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 23 | Aldebaran | E. | 17 19 41 | 3462 | 15 58 34 | 3725 | - - - | - - | - - - | - - |
| | Pollux | E. | 57 33 0 | 2387 | 55 49 6 | 2393 | 54 5 21 | 2398 | 52 21 44 | 2405 |
| 24 | Sun | W. | 122 30 53 | 2779 | 124 5 48 | 2787 | 125 40 33 | 2794 | 127 15 9 | 2801 |
| | α Pegasi | W. | 75 1 10 | 2713 | 76 37 33 | 2715 | 78 13 53 | 2718 | 79 50 9 | 2721 |
| | α Arietis | W. | 31 45 56 | 2535 | 33 26 21 | 2532 | 35 6 49 | 2530 | 36 47 20 | 2531 |
| | Pollux | E. | 43 45 51 | 2436 | 42 3 7 | 2443 | 40 20 33 | 2450 | 38 38 9 | 2456 |
| | Regulus | E. | 80 33 8 | 2433 | 78 50 20 | 2439 | 77 7 41 | 2445 | 75 25 11 | 2452 |
| 25 | Sun | W. | 135 5 39 | 2841 | 136 39 14 | 2850 | 138 12 37 | 2859 | 139 45 49 | 2868 |
| | α Pegasi | W. | 87 50 8 | 2747 | 89 25 46 | 2753 | 91 1 15 | 2761 | 92 36 34 | 2769 |
| | α Arietis | W. | 45 9 35 | 2540 | 46 49 52 | 2544 | 48 30 4 | 2549 | 50 10 9 | 2553 |
| | Pollux | E. | 30 8 38 | 2494 | 28 27 16 | 2502 | 26 46 6 | 2511 | 25 5 8 | 2520 |
| | Regulus | E. | 66 55 1 | 2485 | 65 13 27 | 2493 | 63 32 4 | 2500 | 61 50 50 | 2507 |
| | Mars | E. | 98 56 29 | 2513 | 97 15 34 | 2520 | 95 34 48 | 2526 | 93 54 11 | 2533 |
| 26 | α Arietis | W. | 58 28 52 | 2581 | 60 8 13 | 2588 | 61 47 25 | 2594 | 63 26 28 | 2601 |
| | Aldebaran | W. | 28 41 9 | 2850 | 30 14 32 | 2828 | 31 48 23 | 2811 | 33 22 36 | 2798 |
| | Regulus | E. | 53 27 17 | 2545 | 51 47 6 | 2553 | 50 7 6 | 2561 | 48 27 18 | 2569 |
| | Mars | E. | 85 33 30 | 2569 | 83 53 52 | 2576 | 82 14 24 | 2583 | 80 35 6 | 2591 |
| | Jupiter | E. | 104 11 32 | 2556 | 102 31 36 | 2563 | 100 51 50 | 2571 | 99 12 15 | 2579 |
| 27 | α Arietis | W. | 71 39 13 | 2639 | 73 17 15 | 2647 | 74 55 6 | 2656 | 76 32 45 | 2664 |
| | Aldebaran | W. | 41 16 54 | 2768 | 42 52 4 | 2766 | 44 27 16 | 2767 | 46 2 27 | 2769 |
| | Regulus | E. | 40 11 10 | 2613 | 38 32 33 | 2622 | 36 54 8 | 2632 | 35 15 56 | 2641 |
| | Mars | E. | 72 21 19 | 2632 | 70 43 7 | 2641 | 69 5 7 | 2649 | 67 27 19 | 2658 |
| | Jupiter | E. | 90 57 5 | 2620 | 89 18 37 | 2629 | 87 40 21 | 2637 | 86 2 16 | 2646 |
| 28 | α Arietis | W. | 84 38 6 | 2709 | 86 14 34 | 2718 | 87 50 50 | 2728 | 89 26 53 | 2738 |
| | Aldebaran | W. | 53 57 33 | 2786 | 55 32 19 | 2792 | 57 6 57 | 2798 | 58 41 27 | 2805 |
| | Regulus | E. | 27 8 15 | 2692 | 25 31 25 | 2704 | 23 54 50 | 2715 | 22 18 30 | 2727 |
| | Mars | E. | 59 21 17 | 2704 | 57 44 43 | 2713 | 56 8 21 | 2723 | 54 32 11 | 2733 |
| | Jupiter | E. | 77 54 57 | 2693 | 76 18 7 | 2702 | 74 41 29 | 2711 | 73 5 4 | 2721 |
| | Spica ηψ | E. | 81 5 12 | 2679 | 79 28 4 | 2689 | 77 51 9 | 2699 | 76 14 27 | 2708 |
| 29 | Aldebaran | W. | 66 31 43 | 2842 | 68 5 17 | 2850 | 69 38 40 | 2859 | 71 11 52 | 2867 |
| | Pollux | W. | 22 41 13 | 2775 | 24 16 13 | 2783 | 25 51 3 | 2791 | 27 25 42 | 2800 |
| | Mars | E. | 46 34 46 | 2785 | 44 59 58 | 2795 | 43 25 24 | 2806 | 41 51 4 | 2817 |
| | Jupiter | E. | 65 6 17 | 2771 | 63 31 11 | 2782 | 61 56 19 | 2792 | 60 21 40 | 2802 |
| | Spica ηψ | E. | 68 14 14 | 2758 | 66 38 51 | 2768 | 65 3 41 | 2778 | 63 28 44 | 2788 |
| 30 | Aldebaran | W. | 78 55 3 | 2912 | 80 27 7 | 2922 | 81 58 58 | 2931 | 83 30 38 | 2941 |
| | Pollux | W. | 35 16 2 | 2846 | 36 49 30 | 2856 | 38 22 46 | 2866 | 39 55 49 | 2874 |
| | Mars | E. | 34 3 5 | 2876 | 32 30 15 | 2889 | 30 57 42 | 2902 | 29 25 25 | 2915 |
| | Jupiter | E. | 52 31 49 | 2854 | 50 58 31 | 2864 | 49 25 26 | 2875 | 47 52 35 | 2885 |
| | Spica ηψ | E. | 55 37 19 | 2838 | 54 3 41 | 2848 | 52 30 16 | 2858 | 50 57 3 | 2869 |
| | Saturn | E. | 102 11 23 | 2895 | 100 38 58 | 2905 | 99 6 46 | 2915 | 97 34 46 | 2924 |
| 31 | Aldebaran | W. | 91 5 57 | 2987 | 92 36 26 | 2997 | 94 6 42 | 3006 | 95 36 47 | 3016 |
| | Pollux | W. | 47 38 9 | 2921 | 49 10 1 | 2930 | 50 41 42 | 2938 | 52 13 13 | 2947 |
| | Mars | E. | 21 48 37 | 2997 | 20 18 20 | 3018 | 18 48 29 | 3043 | 17 19 9 | 3072 |
| | Jupiter | E. | 40 11 39 | 2937 | 38 40 7 | 2948 | 37 8 49 | 2958 | 35 37 44 | 2969 |
| | Spica ηψ | E. | 42 14 0 | 2916 | 41 42 10 | 2925 | 40 10 23 | 2935 | 38 38 48 | 2943 |
| | Saturn | [illegible] | [illegible] | [illegible] | 28 27 1 | 2981 | 86 56 25 | 2990 | 85 26 0 | 3000 |

## CONFIGURATIONS OF THE SATELLITES OF JUPITER

At $16^h$ $30^m$, Mean Time.

| Day of the Month. | West. | East. |
|---|---|---|
| 1 | | ○ ·1 ·3 ·2 ·4 |
| 2 | 2· ○ 1· | ○ ·3 4· |
| 3 | ·2 | ○ ·1 3· 4· |
| 4 | ·1 | ○ 3· ·2 4· |
| 5 | 3· | ○ 1· 2· 4· |
| 6 | .3 2· ·1 | ○4· |
| 7 | ·3 4· ·2 | 1○· |
| 8 | 4· | ○·1·3 ·2 |
| 9 | 4· 1· | 2○· ·3 |
| 10 | 4· .2 | ○ ·1 3· |
| 11 | ·4 1· | ○ ·2 3· |
| 12 | ·4 3· | ○ 1· 2· |
| 13 | 3·4 2· ·1 | ○ |
| 14 | ·3 ·4/·2 | ○ 1· |
| 15 | ·1 ● ·3 | ○ ·4 ·2 |
| 16 | 1· | ○ 2· ·3·4 |
| 17 | 2· | ○ ·1 3· ·4 |
| 18 | ● ·2 1· | ○ 3· ·4 |
| 19 | 3· | ○ 1· 2· 4· |
| 20 | 3· ·1/·2. | ○ 4· |
| 21 | ·3 ·2 | ○ 1· 4· |
| 22 | ● ·3 | ·1○ ·2/4. |
| 23 | 1· ○ | 4·○ 2· ·3 |
| 24 | 4·/2. | ○ ·1 3· |
| 25 | 4· 1· | ○ 3· ● |
| 26 | 4· 3· | ○ ·1 2· |
| 27 | 4. 3· ·1 2· | ○ |
| 28 | ·4 ·3 ·2 | ○ 1· |
| 29 | ·4 ·3/·1 | ○ ·2 |
| 30 | ·4 | 1○· 2· ·3 |
| 31 | 2· ·4 | ○·1 3· |

This Table represents, at $16^h$ $30^m$ after *Mean Noon* of each day of the month, the relative positi of the images of Jupiter and his Satellites, as they would appear (disregarding their latitudes) an inverting telescope. Jupiter is indicated by the white circles (○) in the centre of the pa the Satellites by points. The numerals 1, 2, 3, and 4, annexed to the points, serve to distingu the Satellites from each other; and their positions are such as to indicate the directions of the Sa lites' motions, which are in all cases to be considered as *towards the numerals.* When a Satellit at its greatest elongation, the point is placed above or below the centre of the numeral. A wh circle (○) at the left or right hand of the page, denotes that the Satellite placed by the side of i *on* the disc of Jupiter, and a black circle (●) that it is either *behind* the disc, or in the shadow Jupiter.

## ECLIPSES OF THE SATELLITES OF JUPITER.

| ATELLITE. | Day of the Month. | Mean Time. | Sidereal Time. | PHASE as seen in an inverting Telescope. |
|---|---|---|---|---|
| | | h m s | h m s | |
| I. | 1 | 10 57 7·5 | 5 40 44·1 | Im. |
| | 3 | 5 25 30·9 | 0 16 6·1 | Im. |
| | 4 | 23 53 48·6 | 18 51 22·4 | Im. |
| | 6* | 18 22 11·6 | 13 26 44·1 | Im. |
| | 8 | 12 50 30·5 | 8 2 1·6 | Im. |
| | 10 | 7 18 52·0 | 2 37 21·7 | Im. |
| | 12 | 1 47 11·0 | 21 12 39·3 | Im. |
| | 13 | 20 15 33·7 | 15 48 0·7 | Im. i |
| | 15* | 14 43 51·7 | 10 23 17·3 | Im. *  |
| | 17 | 9 12 14·1 | 4 58 38·4 | Im. |
| | 19 | 3 40 32·3 | 23 33 55·2 | Im. |
| | 20 | 22 8 54·3 | 18 9 15·8 | Im. |
| | 22* | 16 37 12·9 | 12 44 33·1 | Im. |
| | 24 | 11 5 35·5 | 7 19 54·2 | Im. |
| | 26 | 5 33 53·1 | 1 55 10·5 | Im. |
| | 28 | 0 2 16·0 | 20 30 32·1 | Im. |
| | 29* | 18 30 34·3 | 15 5 49·0 | Im. |
| | 31* | 12 58 56·8 | 9 41 10·1 | Im. |
| II. | 4 | 6 51 23·1 | 1 46 9·0 | Im. |
| | 7 | 20 7 55·4 | 15 16 41·8 | Im. |
| | 11 | 9 24 30·3 | 4 47 17·2 | Im. i |
| | 14 | 22 41 5·6 | 18 17 53·1 | Im. *  |
| | 18 | 11 57 42·0 | 7 48 30·0 | Im. |
| | 22 | 1 14 21·6 | 21 19 10·2 | Im. |
| | 25* | 14 31 1·3 | 10 49 50·3 | Im. |
| | 29 | 3 47 48·6 | 0 20 38·2 | Im. |
| III. | 1 | 2 2 48·1 | 20 44 56·9 | Im. |
| | 1 | 4 50 34·1 | 23 33 10·4 | Em. |
| | 8 | 6 0 40·0 | 1 11 3·7 | Im. |
| | 8 | 8 47 37·7 | 3 58 28·9 | Em. i e * * |
| | 15 | 9 58 1·0 | 5 36 39·7 | Im.  |
| | 15 | 12 44 13·7 | 8 23 19·7 | Em. |
| | 22* | 13 55 14·9 | 10 2 8·4 | Im. |
| | 22* | 16 40 36·0 | 12 47 56·7 | Em. |
| | 29* | 17 52 38·8 | 14 27 47·2 | Im. |
| | 29 | 20 37 11·6 | 17 12 47·1 | Em. |

## APPROXIMATE SIDEREAL TIMES
OF THE
## OCCULTATIONS OF JUPITER'S SATELLITES BY JUPITER,
AND OF THE
## TRANSITS OF THE SATELLITES AND THEIR SHADOWS OVER THE DISC OF THE PLANET.

| Satellite. | Occultations. | | Transits of Satellites. | | Transits of Shadows. | |
|---|---|---|---|---|---|---|
| | Immersion. | Emersion. | Ingress. | Egress. | Ingress. | Egress. |
| | d h m | d h m | d h m | d h m | d h m | d h |
| I. | | 1* 9 7 | 2 4 7 | 2 6 21 | 2 2 53 | 2 5 |
| | | 3 3 42 | 4 22 42 | 4 0 56 | 4 21 28 | 4 23 4 |
| | | 5 22 18 | 5 17 17 | 6 19 31 | 5 16 3 | 5 18 1 |
| | | 6 16 53 | 7* 11 53 | 7* 14 7 | 7* 10 38 | 7* 12 5 |
| | | 8* 11 28 | 9 6 28 | 9* 8 42 | 9 5 13 | 9 7 2 |
| | | 10 6 4 | 11 1 3 | 11 3 17 | 11 23 48 | 11 2 |
| | In | 12 0 39 | 13 19 38 | 13 21 52 | 12 18 24 | 13 20 3 |
| | | 13 19 14 | 14* 14 13 | 14 16 27 | 14* 12 59 | 14 15 1 |
| | the | 15* 13 49 | 16* 8 48 | 16* 11 2 | 16 7 34 | 16* 9 5 |
| | | 17 8 24 | 18 3 23 | 18 5 37 | 18 2 9 | 18 4 2 |
| | Shadow. | 19 2 59 | 20 21 58 | 20 0 11 | 20 20 45 | 20 23 |
| | | 21 21 34 | 21 16 33 | 21 18 46 | 21 15 20 | 21 17 3 |
| | | 22 16 9 | 23* 11 7 | 23* 13 21 | 23* 9 55 | 23* 12 1 |
| | | 24* 10 43 | 25 5 42 | 25 7 55 | 25 4 30 | 25 6 4 |
| | | 26 5 18 | 27 0 16 | 27 2 30 | 27 23 5 | 27 1 2 |
| | | 28 23 53 | 28 18 51 | 29 21 4 | 28 17 41 | 28 19 5 |
| | | 29 18 27 | 30* 13 25 | 30 15 39 | 30* 12 16 | 30* 14 3 |
| | | 31* 13 1 | | | | |
| II. | | 4 6 40 | 2* 9 45 | 2* 12 13 | 2 7 17 | 2* 9 5 |
| | | 8 20 10 | 6 23 17 | 6 1 44 | 6 20 48 | 6 23 2 |
| | In | 11* 9 41 | 9* 12 50 | 9 15 16 | 9* 10 20 | 9* 12 5 |
| | | 15 23 10 | 13 2 21 | 13 4 47 | 13 23 51 | 13 2 2 |
| | the | 18* 12 39 | 16 15 52 | 16 18 18 | 16* 13 23 | 16 15 5 |
| | | 22 2 8 | 20 5 22 | 20 7 47 | 20 2 55 | 20 5 2 |
| | Shadow. | 25 15 36 | 23 18 52 | 24 21 17 | 23 16 27 | 23 19 |
| | | 29 5 4 | 27 8 21 | 27* 10 46 | 27 5 58 | 27 8 3 |
| | | | 31 21 50 | 31 0 14 | 30 19 30 | 31 22 |
| III. | 1 1 44 | 1 4 28 | 4 15 52 | 4 18 36 | 4* 10 47 | 4* 13 4 |
| | 8 6 13 | 8* 8 54 | 12 20 19 | 12 22 59 | 11 15 12 | 11 18 1 |
| | 15* 10 37 | 15* 13 16 | 19 0 41 | 19 3 19 | 18 19 38 | 19 22 3 |
| | 22* 14 57 | 22 17 33 | 26 4 59 | 26 7 34 | 26 0 4 | 26 3 |
| | 29 19 12 | 30 21 46 | | | | |

| Day of the Month. | For correcting the Places of the Fixed Stars. At Mean Midnight, Logarithm of A | B | C | D | Mean Time of Transit of the First Point of Aries. | Mean Equinoctial Time, adding 0d·536178. Days. | From Mean Noon of January 1. Day of the Year. | Fraction of the Year. |
|---|---|---|---|---|---|---|---|---|
| | | | | | h m s | | | |
| 1 | −0 ·5508 | +1 ·3008 | +8 ·2330 | −0 ·9372 | 5 17 19 ·26 | 284 | 0 | ·000 |
| 2 | 0 ·5889 | 1 ·2992 | 8 ·3212 | 0 ·9375 | 5 13 23 ·35 | 285 | 1 | ·003 |
| 3 | 0 ·6237 | 1 ·2975 | 8 ·3943 | 0 ·9379 | 5 9 27 ·43 | 286 | 2 | ·005 |
| 4 | −0 ·6559 | +1 ·2956 | +8 ·4568 | −0 ·9384 | 5 5 31 ·53 | 287 | 3 | ·008 |
| 5 | 0 ·6857 | 1 ·2936 | 8 ·5112 | 0 ·9388 | 5 1 35 ·62 | 288 | 4 | ·011 |
| 6 | 0 ·7134 | 1 ·2915 | 8 ·5594 | 0 ·9393 | 4 57 39 ·71 | 289 | 5 | ·014 |
| 7 | −0 ·7394 | +1 ·2892 | +8 ·6027 | −0 ·9398 | 4 53 43 ·80 | 290 | 6 | ·016 |
| 8 | 0 ·7638 | 1 ·2867 | 8 ·6418 | 0 ·9404 | 4 49 47 ·89 | 291 | 7 | ·019 |
| 9 | 0 ·7867 | 1 ·2841 | 8 ·6775 | 0 ·9410 | 4 45 51 ·98 | 292 | 8 | ·022 |
| 10 | −0 ·8083 | +1 ·2814 | +8 ·7103 | −0 ·9416 | 4 41 56 ·07 | 293 | 9 | ·025 |
| 11 | 0 ·8288 | 1 ·2785 | 8 ·7406 | 0 ·9422 | 4 38 0 ·16 | 294 | 10 | ·027 |
| 12 | 0 ·8483 | 1 ·2754 | 8 ·7688 | 0 ·9428 | 4 34 4 ·24 | 295 | 11 | ·030 |
| 13 | −0 ·8668 | +1 ·2721 | +8 ·7952 | −0 ·9435 | 4 30 8 ·32 | 296 | 12 | ·033 |
| 14 | 0 ·8844 | 1 ·2687 | 8 ·8199 | 0 ·9442 | 4 26 12 ·40 | 297 | 13 | ·036 |
| 15 | 0 ·9011 | 1 ·2652 | 8 ·8431 | 0 ·9449 | 4 22 16 ·49 | 298 | 14 | ·038 |
| 16 | −0 ·9171 | +1 ·2615 | +8 ·8650 | −0 ·9456 | 4 18 20 ·57 | 299 | 15 | ·041 |
| 17 | 0 ·9324 | 1 ·2576 | 8 ·8857 | 0 ·9464 | 4 14 24 ·66 | 300 | 16 | ·044 |
| 18 | 0 ·9471 | 1 ·2535 | 8 ·9053 | 0 ·9472 | 4 10 28 ·75 | 301 | 17 | ·047 |
| 19 | −0 ·9611 | +1 ·2493 | +8 ·9239 | −0 ·9479 | 4 6 32 ·84 | 302 | 18 | ·049 |
| 20 | 0 ·9746 | 1 ·2449 | 8 ·9417 | 0 ·9488 | 4 2 36 ·94 | 303 | 19 | ·052 |
| 21 | 0 ·9875 | 1 ·2403 | 8 ·9586 | 0 ·9496 | 3 58 41 ·03 | 304 | 20 | ·055 |
| 22 | −0 ·9999 | +1 ·2355 | +8 ·9747 | −0 ·9504 | 3 54 45 ·12 | 305 | 21 | ·058 |
| 23 | 1 ·0118 | 1 ·2305 | 8 ·9901 | 0 ·9512 | 3 50 49 ·21 | 306 | 22 | ·060 |
| 24 | 1 ·0233 | 1 ·2253 | 9 ·0048 | 0 ·9521 | 3 46 53 ·30 | 307 | 23 | ·063 |
| 25 | −1 ·0343 | +1 ·2199 | +9 ·0190 | −0 ·9529 | 3 42 57 ·38 | 308 | 24 | ·066 |
| 26 | 1 ·0449 | 1 ·2144 | 9 ·0326 | 0 ·9538 | 3 39 1 ·47 | 309 | 25 | ·068 |
| 27 | 1 ·0552 | 1 ·2086 | 9 ·0457 | 0 ·9547 | 3 35 5 ·55 | 310 | 26 | ·071 |
| 28 | −1 ·0651 | +1 ·2026 | +9 ·0582 | −0 ·9556 | 3 31 9 ·63 | 311 | 27 | ·074 |
| 29 | 1 ·0746 | 1 ·1964 | 9 ·0703 | 0 ·9565 | 3 27 13 ·72 | 312 | 28 | ·077 |
| 30 | 1 ·0837 | 1 ·1899 | 9 ·0820 | 0 ·9574 | 3 23 17 ·81 | 313 | 29 | ·079 |
| 31 | 1 ·0926 | 1 ·1832 | 9 ·0932 | 0 ·9583 | 3 19 21 ·90 | 314 | 30 | ·082 |
| 32 | −1 ·1011 | +1 ·1763 | +9 ·1041 | −0 ·9592 | 3 15 25 ·99 | 315 | 31 | ·085 |

## AT APPARENT NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | Diff. for 1 hour. | Apparent Declination. | Diff. for 1 hour. | Sidereal Time of the Semidiam. passing the Meridian.* | Equation of Time, *to be added to Apparent Time.* | Diff. for 1 hour |
|---|---|---|---|---|---|---|---|---|
| | | h m s | s | ° ′ ″ | ″ | m s | m s | s |
| Frid. | 1 | 20 57 56 ·59 | 10 ·177 | S. 17 12 19 ·4 | 42 ·81 | 1 8 ·22 | 13 52 ·41 | 0 ·32 |
| Sat. | 2 | 21 2 0 ·84 | 10 ·143 | 16 55 12 ·0 | 43 ·55 | 1 8 ·11 | 14 0 ·09 | 0 ·28 |
| *Sun.* | 3 | 21 6 4 ·28 | 10 ·109 | 16 37 46 ·9 | 44 ·28 | 1 7 ·99 | 14 6 ·96 | 0 ·25 |
| Mon. | 4 | 21 10 6 ·91 | 10 ·076 | 16 20 4 ·3 | 44 ·98 | 1 7 ·88 | 14 13 ·02 | 0 ·21 |
| Tues. | 5 | 21 14 8 ·74 | 10 ·043 | 16 2 4 ·8 | 45 ·67 | 1 7 ·76 | 14 18 ·28 | 0 ·18 |
| Wed. | 6 | 21 18 9 ·77 | 10 ·010 | 15 43 48 ·6 | 46 ·35 | 1 7 ·65 | 14 22 ·75 | 0 ·15 |
| Thur. | 7 | 21 22 10 ·01 | 9 ·977 | 15 25 16 ·2 | 47 ·01 | 1 7 ·53 | 14 26 ·42 | 0 ·12 |
| Frid. | 8 | 21 26 9 ·47 | 9 ·945 | 15 6 28 ·0 | 47 ·65 | 1 7 ·42 | 14 29 ·31 | 0 ·08 |
| Sat. | 9 | 21 30 8 ·14 | 9 ·912 | 14 47 24 ·5 | 48 ·27 | 1 7 ·31 | 14 31 ·42 | 0 ·05 |
| *Sun.* | 10 | 21 34 6 ·04 | 9 ·880 | 14 28 6 ·0 | 48 ·87 | 1 7 ·20 | 14 32 ·75 | 0 ·02 |
| Mon. | 11 | 21 38 3 ·16 | 9 ·848 | 14 8 33 ·0 | 49 ·46 | 1 7 ·09 | 14 33 ·31 | 0 ·00 |
| Tues. | 12 | 21 41 59 ·52 | 9 ·816 | 13 48 45 ·9 | 50 ·03 | 1 6 ·98 | 14 33 ·10 | 0 ·04 |
| Wed. | 13 | 21 45 55 ·10 | 9 ·784 | 13 28 45 ·2 | 50 ·58 | 1 6 ·87 | 14 32 ·13 | 0 ·07 |
| Thur. | 14 | 21 49 49 ·92 | 9 ·753 | 13 8 31 ·4 | 51 ·11 | 1 6 ·76 | 14 30 ·40 | 0 ·10 |
| Frid. | 15 | 21 53 43 ·99 | 9 ·722 | 12 48 4 ·8 | 51 ·63 | 1 6 ·65 | 14 27 ·93 | 0 ·13 |
| Sat. | 16 | 21 57 37 ·32 | 9 ·692 | 12 27 25 ·8 | 52 ·12 | 1 6 ·55 | 14 24 ·72 | 0 ·16 |
| *Sun.* | 17 | 22 1 29 ·92 | 9 ·661 | 12 6 35 ·0 | 52 ·60 | 1 6 ·45 | 14 20 ·78 | 0 ·19 |
| Mon. | 18 | 22 5 21 ·79 | 9 ·632 | 11 45 32 ·7 | 53 ·05 | 1 6 ·35 | 14 16 ·12 | 0 ·22 |
| Tues. | 19 | 22 9 12 ·96 | 9 ·603 | 11 24 19 ·4 | 53 ·50 | 1 6 ·25 | 14 10 ·74 | 0 ·25 |
| Wed. | 20 | 22 13 3 ·43 | 9 ·574 | 11 2 55 ·5 | 53 ·92 | 1 6 ·16 | 14 4 ·67 | 0 ·28 |
| Thur. | 21 | 22 16 53 ·21 | 9 ·547 | 10 41 21 ·5 | 54 ·33 | 1 6 ·06 | 13 57 ·92 | 0 ·30 |
| Frid. | 22 | 22 20 42 ·33 | 9 ·519 | 10 19 37 ·7 | 54 ·71 | 1 5 ·97 | 13 50 ·50 | 0 ·33 |
| Sat. | 23 | 22 24 30 ·79 | 9 ·493 | 9 57 44 ·6 | 55 ·08 | 1 5 ·88 | 13 42 ·42 | 0 ·36 |
| *Sun.* | 24 | 22 28 18 ·62 | 9 ·467 | 9 35 42 ·7 | 55 ·44 | 1 5 ·79 | 13 33 ·71 | 0 ·38 |
| Mon. | 25 | 22 32 5 ·84 | 9 ·442 | 9 13 32 ·1 | 55 ·78 | 1 5 ·70 | 13 24 ·39 | 0 ·41 |
| Tues. | 26 | 22 35 52 ·44 | 9 ·417 | 8 51 13 ·5 | 56 ·10 | 1 5 ·62 | 13 14 ·47 | 0 ·43 |
| Wed. | 27 | 22 39 38 ·46 | 9 ·394 | 8 28 47 ·1 | 56 ·41 | 1 5 ·54 | 13 3 ·96 | 0 ·46 |
| Thur. | 28 | 22 43 23 ·92 | 9 ·372 | 8 6 13 ·3 | 56 ·70 | 1 5 ·46 | 12 52 ·91 | 0 ·48 |
| Frid. | 29 | 22 47 8 ·85 | | S. 7 43 32 ·5 | | 1 5 ·38 | 12 41 ·32 | |

* *Mean* Time of the Semidiameter passing may be found by subtracting 0m18 fr

## AT MEAN NOON.

| | Day of the Month. | THE SUN'S Apparent Right Ascension. | THE SUN'S Apparent Declination. | THE SUN'S Semidiam.* | Equation of Time, *to be subtracted from Mean Time.* | Sidereal Time. |
|---|---|---|---|---|---|---|
| | | h m s | ° ′ ″ | ′ ″ | m s | h m s |
| id. | 1 | 20 57 54 ·24 | S. 17 12 29 ·2 | 16 14 ·9 | 13 52 ·34 | 20 44 1 ·90 |
| t. | 2 | 21 1 58 ·47 | 16 55 22 ·1 | 16 14 ·7 | 14 0 ·02 | 20 47 58 ·45 |
| n. | 3 | 21 6 1 ·90 | 16 37 57 ·2 | 16 14 ·6 | 14 6 ·89 | 20 51 55 ·01 |
| on. | 4 | 21 10 4 ·52 | 16 20 14 ·9 | 16 14 ·4 | 14 12 ·96 | 20 55 51 ·56 |
| es. | 5 | 21 14 6 ·34 | 16 2 15 ·6 | 16 14 ·2 | 14 18 ·23 | 20 59 48 ·11 |
| ed. | 6 | 21 18 7 ·37 | 15 43 59 ·6 | 16 14 ·0 | 14 22 ·71 | 21 3 44 ·66 |
| ur. | 7 | 21 22 7 ·61 | 15 25 27 ·4 | 16 13 ·9 | 14 26 ·39 | 21 7 41 ·22 |
| id. | 8 | 21 26 7 ·06 | 15 6 39 ·4 | 16 13 ·7 | 14 29 ·28 | 21 11 37 ·78 |
| t. | 9 | 21 30 5 ·74 | 14 47 36 ·1 | 16 13 ·5 | 14 31 ·40 | 21 15 34 ·34 |
| n. | 10 | 21 34 3 ·64 | 14 28 17 ·8 | 16 13 ·3 | 14 32 ·74 | 21 19 30 ·90 |
| on. | 11 | 21 38 0 ·77 | 14 8 44 ·9 | 16 13 ·1 | 14 33 ·31 | 21 23 27 ·46 |
| es. | 12 | 21 41 57 ·13 | 13 48 58 ·0 | 16 12 ·9 | 14 33 ·11 | 21 27 24 ·02 |
| ed. | 13 | 21 45 52 ·72 | 13 28 57 ·4 | 16 12 ·7 | 14 32 ·14 | 21 31 20 ·58 |
| ur. | 14 | 21 49 47 ·55 | 13 8 43 ·7 | 16 12 ·5 | 14 30 ·42 | 21 35 17 ·13 |
| id. | 15 | 21 53 41 ·64 | 12 48 17 ·1 | 16 12 ·3 | 14 27 ·96 | 21 39 13 ·68 |
| t. | 16 | 21 57 34 ·99 | 12 27 38 ·3 | 16 12 ·1 | 14 24 ·76 | 21 43 10 ·23 |
| n. | 17 | 22 1 27 ·61 | 12 6 47 ·5 | 16 11 ·9 | 14 20 ·83 | 21 47 6 ·78 |
| on. | 18 | 22 5 19 ·50 | 11 45 45 ·3 | 16 11 ·7 | 14 16 ·17 | 21 51 3 ·33 |
| es. | 19 | 22 9 10 ·68 | 11 24 32 ·0 | 16 11 ·5 | 14 10 ·79 | 21 54 59 ·89 |
| ed. | 20 | 22 13 1 ·18 | 11 3 8 ·1 | 16 11 ·3 | 14 4 ·74 | 21 58 56 ·44 |
| ur. | 21 | 22 16 50 ·99 | 10 41 34 ·1 | 16 11 ·1 | 13 57 ·99 | 22 2 53 ·00 |
| id. | 22 | 22 20 40 ·13 | 10 19 50 ·3 | 16 10 ·9 | 13 50 ·57 | 22 6 49 ·56 |
| t. | 23 | 22 24 28 ·62 | 9 57 57 ·2 | 16 10 ·6 | 13 42 ·50 | 22 10 46 ·12 |
| n. | 24 | 22 28 16 ·47 | 9 35 55 ·2 | 16 10 ·4 | 13 33 ·79 | 22 14 42 ·68 |
| on. | 25 | 22 32 3 ·72 | 9 13 44 ·5 | 16 10 ·2 | 13 24 ·48 | 22 18 39 ·24 |
| es. | 26 | 22 35 50 ·36 | 8 51 25 ·8 | 16 9 ·9 | 13 14 ·57 | 22 22 35 ·79 |
| ed. | 27 | 22 39 36 ·41 | 8 28 59 ·4 | 16 9 ·7 | 13 4 ·06 | 22 26 32 ·35 |
| ur. | 28 | 22 43 21 ·91 | 8 6 25 ·5 | 16 9 ·5 | 12 53 ·01 | 22 30 28 ·90 |
| id. | 29 | 22 47 6 ·87 | S. 7 43 44 ·5 | 16 9 ·2 | 12 41 ·42 | 22 34 25 ·45 |

* for *Apparent* Noon may be assumed the same as that for *Mean* Noon.

## MEAN TIME.

| Day of the Month. | THE SUN'S Apparent Longitude. Noon. | Latitude. Noon. | Logarithm of the Radius Vector of the Earth. Noon. | THE MOON'S Semidiameter. Noon. | Semidiameter. Midnight. | Horizontal Para Noon. | Horizontal Para Mi |
|---|---|---|---|---|---|---|---|
| | ° ′ ″ | ″ | | ′ ″ | ′ ″ | ′ ″ | ′ |
| 1 | 312 0 32 ·7 | N.0 ·05 | 9 ·9937340 | 14 55 ·3 | 14 52 ·4 | 54 45 ·4 | 54 |
| 2 | 313 1 22 ·5 | S.0 ·09 | 9 ·9938036 | 14 49 ·9 | 14 47 ·9 | 54 25 ·6 | 54 |
| 3 | 314 2 11 ·2 | 0 ·23 | 9 ·9938755 | 14 46 ·4 | 14 45 ·5 | 54 12 ·9 | 54 |
| 4 | 315 2 59 ·0 | 0 ·36 | 9 ·9939496 | 14 45 ·3 | 14 45 ·7 | 54 8 ·7 | 54 |
| 5 | 316 3 45 ·9 | 0 ·48 | 9 ·9940258 | 14 46 ·7 | 14 48 ·5 | 54 14 ·0 | 54 |
| 6 | 317 4 31 ·9 | 0 ·58 | 9 ·9941039 | 14 51 ·0 | 14 54 ·2 | 54 29 ·8 | 54 |
| 7 | 318 5 16 ·9 | 0 ·66 | 9 ·9941838 | 14 58 ·2 | 15 2 ·7 | 54 56 ·0 | 55 |
| 8 | 319 6 0 ·9 | 0 ·71 | 9 ·9942652 | 15 7 ·9 | 15 13 ·7 | 55 31 ·6 | 55 |
| 9 | 320 6 43 ·9 | 0 ·74 | 9 ·9943482 | 15 19 ·9 | 15 26 ·5 | 56 15 ·9 | 56 |
| 10 | 321 7 25 ·8 | 0 ·73 | 9 ·9944324 | 15 33 ·5 | 15 40 ·5 | 57 5 ·5 | 57 |
| 11 | 322 8 6 ·5 | 0 ·69 | 9 ·9945179 | 15 47 ·5 | 15 54 ·4 | 57 57 ·1 | 58 |
| 12 | 323 8 45 ·9 | 0 ·62 | 9 ·9946044 | 16 0 ·9 | 16 7 ·0 | 58 46 ·4 | 59 |
| 13 | 324 9 23 ·7 | 0 ·53 | 9 ·9946919 | 16 12 ·5 | 16 17 ·2 | 59 28 ·8 | 59 |
| 14 | 325 10 0 ·1 | 0 ·42 | 9 ·9947805 | 16 21 ·1 | 16 24 ·0 | 60 0 ·3 | 60 |
| 15 | 326 10 34 ·9 | 0 ·30 | 9 ·9948700 | 16 25 ·9 | 16 26 ·8 | 60 17 ·9 | 60 |
| 16 | 327 11 8 ·1 | 0 ·17 | 9 ·9949605 | 16 26 ·6 | 16 25 ·7 | 60 20 ·7 | 60 |
| 17 | 328 11 39 ·6 | S.0 ·04 | 9 ·9950519 | 16 23 ·8 | 16 21 ·1 | 60 10 ·1 | 60 |
| 18 | 329 12 9 ·3 | N.0 ·08 | 9 ·9951445 | 16 17 ·7 | 16 13 ·8 | 59 47 ·8 | 59 |
| 19 | 330 12 37 ·2 | 0 ·19 | 9 ·9952381 | 16 9 ·6 | 16 5 ·1 | 59 18 ·2 | 59 |
| 20 | 331 13 3 ·3 | 0 ·27 | 9 ·9953329 | 16 0 ·3 | 15 55 ·5 | 58 44 ·2 | 58 |
| 21 | 332 13 27 ·4 | 0 ·33 | 9 ·9954291 | 15 50 ·6 | 15 45 ·8 | 58 8 ·6 | 57 |
| 22 | 333 13 49 ·7 | 0 ·37 | 9 ·9955267 | 15 41 ·0 | 15 36 ·3 | 57 33 ·2 | 57 |
| 23 | 334 14 9 ·9 | 0 ·37 | 9 ·9956257 | 15 31 ·7 | 15 27 ·3 | 56 59 ·1 | 56 |
| 24 | 335 14 28 ·2 | 0 ·34 | 9 ·9957263 | 15 23 ·0 | 15 18 ·8 | 56 27 ·2 | 56 |
| 25 | 336 14 44 ·7 | 0 ·28 | 9 ·9958285 | 15 14 ·8 | 15 11 ·0 | 55 57 ·1 | 55 |
| 26 | 337 14 59 ·0 | 0 ·20 | 9 ·9959323 | 15 7 ·3 | 15 3 ·7 | 55 29 ·5 | 55 |
| 27 | 338 15 11 ·3 | N.0 ·09 | 9 ·9960380 | 15 0 ·4 | 14 57 ·3 | 55 4 ·2 | 54 |
| 28 | 339 15 21 ·9 | S.0 ·03 | 9 ·9961454 | 14 54 ·5 | 14 51 ·8 | 54 42 ·4 | 54 |
| 29 | 340 15 30 ·7 | S.0 ·16 | 9 ·9962546 | 14 49 ·5 | 14 47 ·5 | 54 24 ·2 | 54 |

## MEAN TIME.

| | Day of the Month. | THE MOON'S Longitude. Noon. | Longitude. Midnight. | Latitude. Noon. | Latitude. Midnight. | Age. Noon. | Meridian Passage. |
|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | ° ′ ″ | ° ′ ″ | ° ′ ″ | d | h m |
| d. | 1 | 164 35 33·5 | 170 37 59·4 | N.0 59 5·8 | N.0 26 39·7 | 16·9 | 14 44·7 |
| . | 2 | 176 37 46·7 | 182 35 19·8 | S.0 5 53·1 | S.0 38 11·4 | 17·9 | 15 23·9 |
| n. | 3 | 188 31 8·5 | 194 25 44·3 | 1 9 57·7 | 1 40 53·8 | 18·9 | 16 3·1 |
| n. | 4 | 200 19 41·9 | 206 13 36·4 | 2 10 42·8 | 2 39 8·5 | 19·9 | 16 43·3 |
| es. | 5 | 212 8 5·9 | 218 3 48·5 | 3 5 55·6 | 3 30 48·9 | 20·9 | 17 25·8 |
| d. | 6 | 224 1 24·2 | 230 1 31·4 | 3 53 33·1 | 4 13 53·5 | 21·9 | 18 11·4 |
| ur. | 7 | 236 4 48·5 | 242 11 53·2 | 4 31 34·6 | 4 46 22·2 | 22·9 | 19 1·0 |
| d. | 8 | 248 23 19·4 | 254 39 39·8 | 4 58 0·7 | 5 6 15·8 | 23·9 | 19 54·6 |
| . | 9 | 261 1 22·5 | 267 28 49·9 | 5 10 52·8 | 5 11 39·2 | 24·9 | 20 51·5 |
| n. | 10 | 274 2 19·4 | 280 42 1·2 | 5 8 23·2 | 5 0 56·1 | 25·9 | 21 50·0 |
| n. | 11 | 287 27 57·5 | 294 20 2·0 | 4 49 11·4 | 4 33 7·9 | 26·9 | 22 48·1 |
| es. | 12 | 301 17 59·6 | 308 21 27·2 | 4 12 48·2 | 3 48 21·9 | 27·9 | 23 44·1 |
| d. | 13 | 315 29 52·3 | 322 42 35·8 | 3 20 3·3 | 2 48 16·0 | 28·9 | ☾ |
| ur. | 14 | 329 58 51·2 | 337 17 49·1 | 2 13 26·8 | 1 36 11·3 | 0·4 | 0 37·5 |
| d. | 15 | 344 38 36·7 | 352 0 20·5 | S.0 57 7·8 | S.0 17 0·7 | 1·4 | 1 28·7 |
| . | 16 | 359 22 9·5 | 6 43 13·8 | N.0 23 25·8 | N.1 3 26·7 | 2·4 | 2 18·5 |
| n. | 17 | 14 2 49·9 | 21 20 18·7 | 1 42 18·2 | 2 19 18·6 | 3·4 | 3 8·3 |
| n. | 18 | 28 35 8·0 | 35 46 50·9 | 2 53 51·4 | 3 25 23·6 | 4·4 | 3 59·2 |
| es. | 19 | 42 55 7·2 | 49 59 41·5 | 3 53 28·0 | 4 17 43·4 | 5·4 | 4 52·5 |
| d. | 20 | 57 0 24·5 | 63 57 9·6 | 4 37 52·7 | 4 53 45·3 | 6·4 | 5 48·5 |
| ur. | 21 | 70 49 55·3 | 77 38 41·8 | 5 5 14·2 | 5 12 17·3 | 7·4 | 6 46·9 |
| d. | 22 | 84 23 32·6 | 91 4 31·3 | 5 14 56·1 | 5 13 16·6 | 8·4 | 7 46·1 |
| . | 23 | 97 41 43·5 | 104 15 15·5 | 5 7 26·5 | 4 57 37·7 | 9·4 | 8 44·2 |
| n. | 24 | 110 45 14·1 | 117 11 45·5 | 4 44 3·3 | 4 26 59·3 | 10·4 | 9 39·2 |
| n. | 25 | 123 34 56·4 | 129 54 53·3 | 4 6 43·0 | 3 43 34·0 | 11·4 | 10 30·2 |
| es. | 26 | 136 11 43·5 | 142 25 33·7 | 3 17 52·7 | 2 50 0·8 | 12·4 | 11 17·1 |
| d. | 27 | 148 36 31·7 | 154 44 45·6 | 2 20 19·4 | 1 49 12·4 | 13·4 | 12 0·6 |
| ur. | 28 | 160 50 24·6 | 166 53 40·0 | 1 17 1·8 | N.0 44 10·2 | 14·4 | 12 41·6 |
| d. | 29 | 172 54 43·9 | 178 53 50·4 | N.0 10 59·2 | S.0 22 9·2 | 15·4 | 13 21·1 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *FRIDAY* 1. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 11 4 47 ·03 | N.6 58 50 ·4 | 142 ·13 |
| 1 | 11 6 35 ·42 | 6 44 37 ·6 | 142 ·28 |
| 2 | 11 8 23 ·64 | 6 30 23 ·9 | 142 ·43 |
| 3 | 11 10 11 ·69 | 6 16 9 ·3 | 142 ·58 |
| 4 | 11 11 59 ·56 | 6 1 53 ·8 | 142 ·70 |
| 5 | 11 13 47 ·27 | 5 47 37 ·6 | 142 ·83 |
| 6 | 11 15 34 ·82 | 5 33 20 ·6 | 142 ·93 |
| 7 | 11 17 22 ·22 | 5 19 3 ·0 | 143 ·05 |
| 8 | 11 19 9 ·46 | 5 4 44 ·7 | 143 ·15 |
| 9 | 11 20 56 ·56 | 4 50 25 ·8 | 143 ·25 |
| 10 | 11 22 43 ·52 | 4 36 6 ·3 | 143 ·32 |
| 11 | 11 24 30 ·33 | 4 21 46 ·4 | 143 ·38 |
| 12 | 11 26 17 ·02 | 4 7 26 ·1 | 143 ·47 |
| 13 | 11 28 3 ·58 | 3 53 5 ·3 | 143 ·52 |
| 14 | 11 29 50 ·01 | 3 38 44 ·2 | 143 ·57 |
| 15 | 11 31 36 ·32 | 3 24 22 ·8 | 143 ·62 |
| 16 | 11 33 22 ·52 | 3 10 1 ·1 | 143 ·65 |
| 17 | 11 35 8 ·61 | 2 55 39 ·2 | 143 ·67 |
| 18 | 11 36 54 ·59 | 2 41 17 ·2 | 143 ·68 |
| 19 | 11 38 40 ·47 | 2 26 55 ·1 | 143 ·70 |
| 20 | 11 40 26 ·25 | 2 12 32 ·9 | 143 ·70 |
| 21 | 11 42 11 ·94 | 1 58 10 ·7 | 143 ·68 |
| 22 | 11 43 57 ·54 | 1 43 48 ·6 | 143 ·68 |
| 23 | 11 45 43 ·06 | N.1 29 26 ·5 | 143 ·65 |
| | *SATURDAY* 2. | | |
| 0 | 11 47 28 ·50 | N.1 15 4 ·6 | 143 ·62 |
| 1 | 11 49 13 ·86 | 1 0 42 ·9 | 143 ·58 |
| 2 | 11 50 59 ·16 | 0 46 21 ·4 | 143 ·53 |
| 3 | 11 52 44 ·38 | 0 32 0 ·2 | 143 ·50 |
| 4 | 11 54 29 ·55 | 0 17 39 ·2 | 143 ·42 |
| 5 | 11 56 14 ·66 | N.0 3 18 ·7 | 143 ·37 |
| 6 | 11 57 59 ·72 | S.0 11 1 ·5 | 143 ·30 |
| 7 | 11 59 44 ·73 | 0 25 21 ·3 | 143 ·20 |
| 8 | 12 1 29 ·69 | 0 39 40 ·5 | 143 ·13 |
| 9 | 12 3 14 ·62 | 0 53 59 ·3 | 143 ·03 |
| 10 | 12 4 59 ·52 | 1 8 17 ·5 | 142 ·92 |
| 11 | 12 6 44 ·38 | 1 22 35 ·0 | 142 ·82 |
| 12 | 12 8 29 ·22 | 1 36 51 ·9 | 142 ·72 |
| 13 | 12 10 14 ·04 | 1 51 8 ·2 | 142 ·58 |
| 14 | 12 11 58 ·84 | 2 5 23 ·7 | 142 ·47 |
| 15 | 12 13 43 ·63 | 2 19 38 ·5 | 142 ·32 |
| 16 | 12 15 28 ·42 | 2 33 52 ·4 | 142 ·18 |
| 17 | 12 17 13 ·20 | 2 48 5 ·5 | 142 ·03 |
| 18 | 12 18 57 ·98 | 3 2 17 ·7 | 141 ·88 |
| 19 | 12 20 42 ·78 | 3 16 29 ·0 | 141 ·72 |
| 20 | 12 22 27 ·58 | 3 30 39 ·3 | 141 ·53 |
| 21 | 12 24 12 ·40 | 3 44 48 ·5 | 141 ·37 |
| 22 | 12 25 57 ·24 | 3 58 56 ·7 | 141 ·18 |
| 23 | 12 27 42 ·10 | 4 13 3 ·8 | 141 ·00 |
| 24 | 12 29 26 ·99 | S.4 27 9 ·8 | |

| Hour. | Right Ascension. | Declination. |
|---|---|---|
| | *SUNDAY* 3. | |
| | h m s | ° ′ ″ |
| 0 | 12 29 26 ·99 | S. 4 27 9 |
| 1 | 12 31 11 ·91 | 4 41 14 |
| 2 | 12 32 56 ·87 | 4 55 18 |
| 3 | 12 34 41 ·88 | 5 9 20 |
| 4 | 12 36 26 ·93 | 5 23 21 |
| 5 | 12 38 12 ·04 | 5 37 20 |
| 6 | 12 39 57 ·19 | 5 51 19 |
| 7 | 12 41 42 ·41 | 6 5 15 |
| 8 | 12 43 27 ·70 | 6 19 11 |
| 9 | 12 45 13 ·05 | 6 33 5 |
| 10 | 12 46 58 ·48 | 6 46 57 |
| 11 | 12 48 43 ·98 | 7 0 47 |
| 12 | 12 50 29 ·57 | 7 14 36 |
| 13 | 12 52 15 ·25 | 7 28 24 |
| 14 | 12 54 1 ·01 | 7 42 9 |
| 15 | 12 55 46 ·88 | 7 55 53 |
| 16 | 12 57 32 ·84 | 8 9 35 |
| 17 | 12 59 18 ·91 | 8 23 16 |
| 18 | 13 1 5 ·09 | 8 36 54 |
| 19 | 13 2 51 ·38 | 8 50 31 |
| 20 | 13 4 37 ·79 | 9 4 5 |
| 21 | 13 6 24 ·32 | 9 17 37 |
| 22 | 13 8 10 ·98 | 9 31 8 |
| 23 | 13 9 57 ·77 | S. 9 44 36 |
| | *MONDAY* 4. | |
| 0 | 13 11 44 ·69 | S. 9 58 2 |
| 1 | 13 13 31 ·75 | 10 11 26 |
| 2 | 13 15 18 ·96 | 10 24 48 |
| 3 | 13 17 6 ·32 | 10 38 8 |
| 4 | 13 18 53 ·82 | 10 51 25 |
| 5 | 13 20 41 ·49 | 11 4 40 |
| 6 | 13 22 29 ·31 | 11 17 52 |
| 7 | 13 24 17 ·30 | 11 31 3 |
| 8 | 13 26 5 ·46 | 11 44 10 |
| 9 | 13 27 53 ·80 | 11 57 15 |
| 10 | 13 29 42 ·31 | 12 10 18 |
| 11 | 13 31 31 ·01 | 12 23 18 |
| 12 | 13 33 19 ·89 | 12 36 15 |
| 13 | 13 35 8 ·96 | 12 49 9 |
| 14 | 13 36 58 ·23 | 13 2 1 |
| 15 | 13 38 47 ·70 | 13 14 50 |
| 16 | 13 40 37 ·38 | 13 27 37 |
| 17 | 13 42 27 ·26 | 13 40 20 |
| 18 | 13 44 17 ·35 | 13 53 0 |
| 19 | 13 46 7 ·66 | 14 5 38 |
| 20 | 13 47 58 ·19 | 14 18 12 |
| 21 | 13 | 44 |
| 22 | 13 | |
| 23 | | |
| 24 | | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 5. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 13 55 22 ·60 | S. 15 7 59 ·2 | 123 ·10 |
| 1 | 13 57 14 ·29 | 15 20 17 ·8 | 122 ·57 |
| 2 | 13 59 6 ·23 | 15 32 33 ·2 | 122 ·00 |
| 3 | 14 0 58 ·42 | 15 44 45 ·2 | 121 ·42 |
| 4 | 14 2 50 ·86 | 15 56 53 ·7 | 120 ·87 |
| 5 | 14 4 43 ·55 | 16 8 58 ·9 | 120 ·27 |
| 6 | 14 6 36 ·51 | 16 21 0 ·5 | 119 ·68 |
| 7 | 14 8 29 ·73 | 16 32 58 ·6 | 119 ·07 |
| 8 | 14 10 23 ·22 | 16 44 53 ·0 | 118 ·47 |
| 9 | 14 12 16 ·99 | 16 56 43 ·8 | 117 ·85 |
| 10 | 14 14 11 ·03 | 17 8 30 ·9 | 117 ·23 |
| 11 | 14 16 5 ·35 | 17 20 14 ·3 | 116 ·58 |
| 12 | 14 17 59 ·95 | 17 31 53 ·8 | 115 ·95 |
| 13 | 14 19 54 ·84 | 17 43 29 ·5 | 115 ·28 |
| 14 | 14 21 50 ·03 | 17 55 1 ·2 | 114 ·63 |
| 15 | 14 23 45 ·50 | 18 6 29 ·0 | 113 ·95 |
| 16 | 14 25 41 ·28 | 18 17 52 ·7 | 113 ·28 |
| 17 | 14 27 37 ·36 | 18 29 12 ·4 | 112 ·58 |
| 18 | 14 29 33 ·74 | 18 40 27 ·9 | 111 ·88 |
| 19 | 14 31 30 ·43 | 18 51 39 ·2 | 111 ·18 |
| 20 | 14 33 27 ·44 | 19 2 46 ·3 | 110 ·47 |
| 21 | 14 35 24 ·76 | 19 13 49 ·1 | 109 ·73 |
| 22 | 14 37 22 ·40 | 19 24 47 ·5 | 109 ·00 |
| 23 | 14 39 20 ·35 | S. 19 35 41 ·5 | 108 ·25 |
| | *WEDNESDAY* 6. | | |
| 0 | 14 41 18 ·64 | S. 19 46 31 ·0 | 107 ·50 |
| 1 | 14 43 17 ·25 | 19 57 16 ·0 | 106 ·73 |
| 2 | 14 45 16 ·20 | 20 7 56 ·4 | 105 ·95 |
| 3 | 14 47 15 ·48 | 20 18 32 ·1 | 105 ·17 |
| 4 | 14 49 15 ·10 | 20 29 3 ·1 | 104 ·38 |
| 5 | 14 51 15 ·05 | 20 39 29 ·4 | 103 ·57 |
| 6 | 14 53 15 ·35 | 20 49 50 ·8 | 102 ·75 |
| 7 | 14 55 16 ·00 | 21 0 7 ·3 | 101 ·92 |
| 8 | 14 57 16 ·99 | 21 10 18 ·8 | 101 ·08 |
| 9 | 14 59 18 ·34 | 21 20 25 ·3 | 100 ·25 |
| 10 | 15 1 20 ·04 | 21 30 26 ·8 | 99 ·37 |
| 11 | 15 3 22 ·09 | 21 40 23 ·0 | 98 ·52 |
| 12 | 15 5 24 ·51 | 21 50 14 ·1 | 97 ·63 |
| 13 | 15 7 27 ·29 | 21 59 59 ·9 | 96 ·73 |
| 14 | 15 9 30 ·43 | 22 9 40 ·3 | 95 ·85 |
| 15 | 15 11 33 ·94 | 22 19 15 ·4 | 94 ·92 |
| 16 | 15 13 37 ·81 | 22 28 44 ·9 | 94 ·02 |
| 17 | 15 15 42 ·06 | 22 38 9 ·0 | 93 ·07 |
| 18 | 15 17 46 ·68 | 22 47 27 ·4 | 92 ·13 |
| 19 | 15 19 51 ·67 | 22 56 40 ·2 | 91 ·18 |
| 20 | 15 21 57 ·04 | 23 5 47 ·3 | 90 ·20 |
| 21 | 15 24 2 ·79 | 23 14 48 ·5 | 89 ·23 |
| 22 | 15 26 8 ·91 | 23 23 43 ·9 | 88 ·25 |
| 23 | 15 28 15 ·41 | 23 32 33 ·4 | 87 ·25 |
| 24 | 15 30 22 ·30 | S. 23 41 16 ·9 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *THURSDAY* 7. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 15 30 22 ·30 | S. 23 41 16 ·9 | 86 ·25 |
| 1 | 15 32 29 ·57 | 23 49 54 ·4 | 85 ·22 |
| 2 | 15 34 37 ·23 | 23 58 25 ·7 | 84 ·18 |
| 3 | 15 36 45 ·27 | 24 6 50 ·8 | 83 ·13 |
| 4 | 15 38 53 ·70 | 24 15 9 ·6 | 82 ·10 |
| 5 | 15 41 2 ·52 | 24 23 22 ·2 | 81 ·02 |
| 6 | 15 43 11 ·72 | 24 31 28 ·3 | 79 ·93 |
| 7 | 15 45 21 ·32 | 24 39 27 ·9 | 78 ·83 |
| 8 | 15 47 31 ·30 | 24 47 20 ·9 | 77 ·75 |
| 9 | 15 49 41 ·67 | 24 55 7 ·4 | 76 ·63 |
| 10 | 15 51 52 ·44 | 25 2 47 ·2 | 75 ·48 |
| 11 | 15 54 3 ·59 | 25 10 20 ·1 | 74 ·37 |
| 12 | 15 56 15 ·13 | 25 17 46 ·3 | 73 ·20 |
| 13 | 15 58 27 ·06 | 25 25 5 ·5 | 72 ·05 |
| 14 | 16 0 39 ·39 | 25 32 17 ·8 | 70 ·87 |
| 15 | 16 2 52 ·10 | 25 39 23 ·0 | 69 ·67 |
| 16 | 16 5 5 ·20 | 25 46 21 ·0 | 68 ·48 |
| 17 | 16 7 18 ·69 | 25 53 11 ·9 | 67 ·28 |
| 18 | 16 9 32 ·57 | 25 59 55 ·6 | 66 ·03 |
| 19 | 16 11 46 ·83 | 26 6 31 ·8 | 64 ·82 |
| 20 | 16 14 1 ·48 | 26 13 0 ·7 | 63 ·57 |
| 21 | 16 16 16 ·52 | 26 19 22 ·1 | 62 ·32 |
| 22 | 16 18 31 ·93 | 26 25 36 ·0 | 61 ·03 |
| 23 | 16 20 47 ·73 | S. 26 31 42 ·2 | 59 ·77 |
| | *FRIDAY* 8. | | |
| 0 | 16 23 3 ·91 | S. 26 37 40 ·8 | 58 ·47 |
| 1 | 16 25 20 ·47 | 26 43 31 ·6 | 57 ·17 |
| 2 | 16 27 37 ·40 | 26 49 14 ·6 | 55 ·85 |
| 3 | 16 29 54 ·72 | 26 54 49 ·7 | 54 ·52 |
| 4 | 16 32 12 ·40 | 27 0 16 ·8 | 53 ·18 |
| 5 | 16 34 30 ·45 | 27 5 35 ·9 | 51 ·83 |
| 6 | 16 36 48 ·87 | 27 10 46 ·9 | 50 ·47 |
| 7 | 16 39 7 ·66 | 27 15 49 ·7 | 49 ·08 |
| 8 | 16 41 26 ·81 | 27 20 44 ·2 | 47 ·70 |
| 9 | 16 43 46 ·31 | 27 25 30 ·4 | 46 ·30 |
| 10 | 16 46 6 ·18 | 27 30 8 ·2 | 44 ·90 |
| 11 | 16 48 26 ·39 | 27 34 37 ·6 | 43 ·47 |
| 12 | 16 50 46 ·96 | 27 38 58 ·4 | 42 ·03 |
| 13 | 16 53 7 ·87 | 27 43 10 ·6 | 40 ·60 |
| 14 | 16 55 29 ·13 | 27 47 14 ·2 | 39 ·13 |
| 15 | 16 57 50 ·72 | 27 51 9 ·0 | 37 ·67 |
| 16 | 17 0 12 ·65 | 27 54 55 ·0 | 36 ·20 |
| 17 | 17 2 34 ·91 | 27 58 32 ·2 | 34 ·70 |
| 18 | 17 4 57 ·49 | 28 2 0 ·4 | 33 ·22 |
| 19 | 17 7 20 ·40 | 28 5 19 ·7 | 31 ·70 |
| 20 | 17 9 43 ·62 | 28 8 29 ·9 | 30 ·18 |
| 21 | 17 12 7 ·15 | 28 11 31 ·0 | 28 ·65 |
| 22 | 17 14 30 ·99 | 28 14 22 ·9 | 27 ·12 |
| 23 | 17 16 55 ·13 | 28 17 5 ·6 | 25 ·57 |
| 24 | 17 19 19 ·57 | S. 28 19 39 ·0 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SATURDAY* 9. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 17 19 19·57 | S. 28 19 39·0 | 24·02 |
| 1 | 17 21 44·30 | 28 22 3·1 | 22·45 |
| 2 | 17 24 9·32 | 28 24 17·8 | 20·87 |
| 3 | 17 26 34·61 | 28 26 23·0 | 19·28 |
| 4 | 17 29 0·18 | 28 28 18·7 | 17·68 |
| 5 | 17 31 26·02 | 28 30 4·8 | 16·08 |
| 6 | 17 33 52·12 | 28 31 41·3 | 14·47 |
| 7 | 17 36 18·47 | 28 33 8·1 | 12·85 |
| 8 | 17 38 45·07 | 28 34 25·2 | 11·22 |
| 9 | 17 41 11·92 | 28 35 32·5 | 9·57 |
| 10 | 17 43 39·00 | 28 36 29·9 | 7·93 |
| 11 | 17 46 6·31 | 28 37 17·5 | 6·28 |
| 12 | 17 48 33·85 | 28 37 55·2 | 4·62 |
| 13 | 17 51 1·60 | 28 38 22·9 | 2·95 |
| 14 | 17 53 29·57 | 28 38 40·6 | 1·27 |
| 15 | 17 55 57·73 | 28 38 48·2 | 0·42 |
| 16 | 17 58 26·09 | 28 38 45·7 | 2·10 |
| 17 | 18 0 54·64 | 28 38 33·1 | 3·80 |
| 18 | 18 3 23·37 | 28 38 10·3 | 5·50 |
| 19 | 18 5 52·28 | 28 37 37·3 | 7·22 |
| 20 | 18 8 21·35 | 28 36 54·0 | 8·92 |
| 21 | 18 10 50·58 | 28 36 0·5 | 10·63 |
| 22 | 18 13 19·96 | 28 34 56·7 | 12·37 |
| 23 | 18 15 49·49 | S. 28 33 42·5 | 14·08 |
| | *SUNDAY* 10. | | |
| 0 | 18 18 19·15 | S. 28 32 18·0 | 15·82 |
| 1 | 18 20 48·95 | 28 30 43·1 | 17·55 |
| 2 | 18 23 18·86 | 28 28 57·8 | 19·30 |
| 3 | 18 25 48·89 | 28 27 2·0 | 21·03 |
| 4 | 18 28 19·02 | 28 24 55·8 | 22·78 |
| 5 | 18 30 49·25 | 28 22 39·1 | 24·53 |
| 6 | 18 33 19·56 | 28 20 11·9 | 26·30 |
| 7 | 18 35 49·96 | 28 17 34·1 | 28·03 |
| 8 | 18 38 20·44 | 28 14 45·9 | 29·80 |
| 9 | 18 40 50·97 | 28 11 47·1 | 31·57 |
| 10 | 18 43 21·56 | 28 8 37·7 | 33·32 |
| 11 | 18 45 52·21 | 28 5 17·8 | 35·08 |
| 12 | 18 48 22·89 | 28 1 47·3 | 36·85 |
| 13 | 18 50 53·61 | 27 58 6·2 | 38·62 |
| 14 | 18 53 24·35 | 27 54 14·5 | 40·37 |
| 15 | 18 55 55·10 | 27 50 12·3 | 42·15 |
| 16 | 18 58 25·87 | 27 45 59·4 | 43·90 |
| 17 | 19 0 56·64 | 27 41 36·0 | 45·67 |
| 18 | 19 3 27·40 | 27 37 2·0 | 47·43 |
| 19 | 19 5 58·14 | 27 32 17·4 | 49·18 |
| 20 | 19 8 28·87 | 27 27 22·3 | 50·95 |
| 21 | 19 10 59·57 | 27 22 16·6 | 52·70 |
| 22 | 19 13 30·23 | 27 17 0·4 | 54·45 |
| 23 | 19 16 0·84 | 27 11 33·7 | 56·20 |
| 24 | 19 18 31·41 | S. 27 5 56·5 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *MONDAY* 11. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 19 18 31·41 | S. 27 5 56·5 | 57·95 |
| 1 | 19 21 1·92 | 27 0 8·8 | 59·70 |
| 2 | 19 23 32·36 | 26 54 10·6 | 61·42 |
| 3 | 19 26 2·72 | 26 48 2·0 | 63·17 |
| 4 | 19 28 33·01 | 26 41 43·0 | 64·90 |
| 5 | 19 31 3·21 | 26 35 13·6 | 66·63 |
| 6 | 19 33 33·31 | 26 28 33·8 | 68·35 |
| 7 | 19 36 3·32 | 26 21 43·7 | 70·07 |
| 8 | 19 38 33·22 | 26 14 43·3 | 71·78 |
| 9 | 19 41 3·01 | 26 7 32·6 | 73·48 |
| 10 | 19 43 32·67 | 26 0 11·7 | 75·18 |
| 11 | 19 46 2·21 | 25 52 40·6 | 76·88 |
| 12 | 19 48 31·62 | 25 44 59·3 | 78·57 |
| 13 | 19 51 0·89 | 25 37 7·9 | 80·25 |
| 14 | 19 53 30·01 | 25 29 6·4 | 81·93 |
| 15 | 19 55 58·98 | 25 20 54·8 | 83·58 |
| 16 | 19 58 27·79 | 25 12 33·3 | 85·23 |
| 17 | 20 0 56·45 | 25 4 1·9 | 86·88 |
| 18 | 20 3 24·94 | 24 55 20·6 | 88·53 |
| 19 | 20 5 53·25 | 24 46 29·4 | 90·13 |
| 20 | 20 8 21·40 | 24 37 28·5 | 91·78 |
| 21 | 20 10 49·36 | 24 28 17·8 | 93·40 |
| 22 | 20 13 17·13 | 24 18 57·4 | 94·98 |
| 23 | 20 15 44·71 | S. 24 9 27·5 | 96·58 |
| | *TUESDAY* 12. | | |
| 0 | 20 18 12·10 | S. 23 59 48·0 | 98·17 |
| 1 | 20 20 39·29 | 23 49 59·0 | 99·73 |
| 2 | 20 23 6·28 | 23 40 0·6 | 101·28 |
| 3 | 20 25 33·06 | 23 29 52·9 | 102·83 |
| 4 | 20 27 59·63 | 23 19 35·8 | 104·38 |
| 5 | 20 30 25·98 | 23 9 9·5 | 105·90 |
| 6 | 20 32 52·12 | 22 58 34·1 | 107·42 |
| 7 | 20 35 18·03 | 22 47 49·6 | 108·93 |
| 8 | 20 37 43·72 | 22 36 56·0 | 110·42 |
| 9 | 20 40 9·19 | 22 25 53·5 | 111·88 |
| 10 | 20 42 34·42 | 22 14 42·2 | 113·37 |
| 11 | 20 44 59·42 | 22 3 22·0 | 114·82 |
| 12 | 20 47 24·18 | 21 51 53·1 | 116·27 |
| 13 | 20 49 48·70 | 21 40 15·5 | 117·68 |
| 14 | 20 52 12·99 | 21 28 29·4 | 119·10 |
| 15 | 20 54 37·03 | 21 16 34·8 | 120·50 |
| 16 | 20 57 0·83 | 21 4 31·8 | 121·88 |
| 17 | 20 59 24·39 | 20 52 20·5 | 123·25 |
| 18 | 21 1 47·69 | 20 40 1·0 | 124·62 |
| 19 | 21 4 10·75 | 20 27 33·3 | 125·95 |
| 20 | 21 6 33·57 | 20 14 57·6 | 127·27 |
| 21 | 21 8 56·13 | 20 2 14·0 | 128·60 |
| 22 | 21 11 18·44 | 19 49 22·4 | 129·88 |
| 23 | 21 13 40·50 | 19 36 23·1 | 131·17 |
| 24 | 21 16 2·31 | S. 19 23 16·1 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| r. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *WEDNESDAY* 13. | | |
| | h m s | ° ′ ″ | ″ |
| | 21 16 2 ·31 | S. 19 23 16 ·1 | 132 ·43 |
| | 21 18 23 ·87 | 19 10 1 ·5 | 133 ·67 |
| | 21 20 45 ·17 | 18 56 39 ·5 | 134 ·92 |
| | 21 23 6 ·23 | 18 43 10 ·0 | 136 ·13 |
| | 21 25 27 ·03 | 18 29 33 ·2 | 137 ·33 |
| | 21 27 47 ·58 | 18 15 49 ·2 | 138 ·52 |
| | 21 30 7 ·87 | 18 1 58 ·1 | 139 ·68 |
| | 21 32 27 ·92 | 17 48 0 ·0 | 140 ·85 |
| | 21 34 47 ·71 | 17 33 54 ·9 | 141 ·98 |
| | 21 37 7 ·26 | 17 19 43 ·0 | 143 ·10 |
| | 21 39 26 ·55 | 17 5 24 ·4 | 144 ·22 |
| | 21 41 45 ·60 | 16 50 59 ·1 | 145 ·30 |
| | 21 44 4 ·40 | 16 36 27 ·3 | 146 ·38 |
| | 21 46 22 ·95 | 16 21 49 ·0 | 147 ·43 |
| | 21 48 41 ·26 | 16 7 4 ·4 | 148 ·47 |
| | 21 50 59 ·32 | 15 52 13 ·6 | 149 ·48 |
| | 21 53 17 ·14 | 15 37 16 ·7 | 150 ·48 |
| | 21 55 34 ·73 | 15 22 13 ·8 | 151 ·48 |
| | 21 57 52 ·07 | 15 7 4 ·9 | 152 ·43 |
| | 22 0 9 ·18 | 14 51 50 ·3 | 153 ·40 |
| | 22 2 26 ·05 | 14 36 29 ·9 | 154 ·32 |
| 1 | 22 4 42 ·69 | 14 21 4 ·0 | 155 ·23 |
| 2 | 22 6 59 ·10 | 14 5 32 ·6 | 156 ·13 |
| 3 | 22 9 15 ·28 | S. 13 49 55 ·8 | 157 ·00 |
| | *THURSDAY* 14. | | |
| 0 | 22 11 31 ·24 | S. 13 34 13 ·8 | 157 ·87 |
| 1 | 22 13 46 ·98 | 13 18 26 ·6 | 158 ·70 |
| 2 | 22 16 2 ·51 | 13 2 34 ·4 | 159 ·52 |
| 3 | 22 18 17 ·81 | 12 46 37 ·3 | 160 ·33 |
| 4 | 22 20 32 ·91 | 12 30 35 ·3 | 161 ·12 |
| 5 | 22 22 47 ·79 | 12 14 28 ·6 | 161 ·88 |
| 6 | 22 25 2 ·47 | 11 58 17 ·3 | 162 ·63 |
| 7 | 22 27 16 ·94 | 11 42 1 ·5 | 163 ·37 |
| 8 | 22 29 31 ·22 | 11 25 41 ·3 | 164 ·08 |
| 9 | 22 31 45 ·29 | 11 9 16 ·8 | 164 ·78 |
| 0 | 22 33 59 ·17 | 10 52 48 ·1 | 165 ·45 |
| 1 | 22 36 12 ·87 | 10 36 15 ·4 | 166 ·12 |
| 2 | 22 38 26 ·37 | 10 19 38 ·7 | 166 ·77 |
| | 22 40 39 ·69 | 10 2 58 ·1 | 167 ·37 |
| | 22 42 52 ·84 | 9 46 13 ·9 | 167 ·98 |
| | 22 45 5 ·81 | 9 29 26 ·0 | 168 ·57 |
| | 22 47 18 ·61 | 9 12 34 ·6 | 169 ·13 |
| | 22 49 31 ·24 | 8 55 39 ·8 | 169 ·68 |
| | 22 51 43 ·70 | 8 38 41 ·7 | 170 ·20 |
| | 22 53 56 ·01 | 8 21 40 ·5 | 170 ·72 |
| | 22 56 8 ·17 | 8 4 36 ·2 | 171 ·20 |
| | 22 58 20 ·17 | 7 47 29 ·0 | 171 ·68 |
| | ·02 | 7 30 18 ·9 | 172 ·12 |
| | | 7 13 6 ·2 | 172 ·57 |
| | | 55 50 ·2 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *FRIDAY* 15. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 23 4 55 ·31 | S. 6 55 50 ·8 | 172 ·97 |
| 1 | 23 7 6 ·75 | 6 38 33 ·0 | 173 ·37 |
| 2 | 23 9 18 ·07 | 6 21 12 ·8 | 173 ·73 |
| 3 | 23 11 29 ·26 | 6 3 50 ·4 | 174 ·10 |
| 4 | 23 13 40 ·33 | 5 46 25 ·8 | 174 ·45 |
| 5 | 23 15 51 ·28 | 5 28 59 ·1 | 174 ·75 |
| 6 | 23 18 2 ·12 | 5 11 30 ·6 | 175 ·07 |
| 7 | 23 20 12 ·86 | 4 54 0 ·2 | 175 ·35 |
| 8 | 23 22 23 ·49 | 4 36 28 ·1 | 175 ·60 |
| 9 | 23 24 34 ·03 | 4 18 54 ·5 | 175 ·85 |
| 10 | 23 26 44 ·48 | 4 1 19 ·4 | 176 ·08 |
| 11 | 23 28 54 ·84 | 3 43 42 ·9 | 176 ·30 |
| 12 | 23 31 5 ·12 | 3 26 5 ·1 | 176 ·48 |
| 13 | 23 33 15 ·32 | 3 8 26 ·2 | 176 ·67 |
| 14 | 23 35 25 ·45 | 2 50 46 ·2 | 176 ·80 |
| 15 | 23 37 35 ·51 | 2 33 5 ·4 | 176 ·95 |
| 16 | 23 39 45 ·51 | 2 15 23 ·7 | 177 ·07 |
| 17 | 23 41 55 ·45 | 1 57 41 ·3 | 177 ·17 |
| 18 | 23 44 5 ·34 | 1 39 58 ·3 | 177 ·23 |
| 19 | 23 46 15 ·18 | 1 22 14 ·9 | 177 ·30 |
| 20 | 23 48 24 ·98 | 1 4 31 ·1 | 177 ·35 |
| 21 | 23 50 34 ·73 | 0 46 47 ·0 | 177 ·37 |
| 22 | 23 52 44 ·46 | 0 29 2 ·8 | 177 ·37 |
| 23 | 23 54 54 ·16 | S. 0 11 18 ·6 | 177 ·37 |
| | *SATURDAY* 16. | | |
| 0 | 23 57 3 ·83 | N. 0 6 25 ·6 | 177 ·33 |
| 1 | 23 59 13 ·49 | 0 24 9 ·6 | 177 ·27 |
| 2 | 0 1 23 ·13 | 0 41 53 ·2 | 177 ·22 |
| 3 | 0 3 32 ·76 | 0 59 36 ·5 | 177 ·13 |
| 4 | 0 5 42 ·40 | 1 17 19 ·3 | 177 ·02 |
| 5 | 0 7 52 ·03 | 1 35 1 ·4 | 176 ·90 |
| 6 | 0 10 1 ·67 | 1 52 42 ·8 | 176 ·77 |
| 7 | 0 12 11 ·33 | 2 10 23 ·4 | 176 ·60 |
| 8 | 0 14 21 ·00 | 2 28 3 ·0 | 176 ·42 |
| 9 | 0 16 30 ·70 | 2 45 41 ·5 | 176 ·23 |
| 10 | 0 18 40 ·43 | 3 3 18 ·9 | 176 ·03 |
| 11 | 0 20 50 ·18 | 3 20 55 ·1 | 175 ·78 |
| 12 | 0 22 59 ·98 | 3 38 29 ·8 | 175 ·55 |
| 13 | 0 25 9 ·82 | 3 56 3 ·1 | 175 ·27 |
| 14 | 0 27 19 ·71 | 4 13 34 ·7 | 175 ·00 |
| 15 | 0 29 29 ·65 | 4 31 4 ·7 | 174 ·70 |
| 16 | 0 31 39 ·65 | 4 48 32 ·9 | 174 ·37 |
| 17 | 0 33 49 ·71 | 5 5 59 ·1 | 174 ·03 |
| 18 | 0 35 59 ·84 | 5 23 23 ·3 | 173 ·68 |
| 19 | 0 38 10 ·05 | 5 40 45 ·4 | 173 ·32 |
| 20 | 0 40 20 ·33 | 5 58 5 ·3 | 172 ·92 |
| 21 | 0 42 30 ·69 | 6 15 22 ·8 | 172 ·52 |
| 22 | 0 44 41 ·14 | 6 32 37 ·9 | 172 ·10 |
| 23 | 0 46 51 ·69 | 6 49 50 ·5 | 171 ·65 |
| 24 | 0 49 2 ·33 | N. 7 7 0 ·4 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10$^{m}$. |
|---|---|---|---|
| | *SUNDAY* 17. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 0 49 2·33 | N. 7 7 0·4 | 171·18 |
| 1 | 0 51 13·08 | 7 24 7·5 | 170·72 |
| 2 | 0 53 23·93 | 7 41 11·8 | 170·23 |
| 3 | 0 55 34·89 | 7 58 13·2 | 169·70 |
| 4 | 0 57 45·97 | 8 15 11·4 | 169·18 |
| 5 | 0 59 57·18 | 8 32 6·5 | 168·63 |
| 6 | 1 2 8·50 | 8 48 58·3 | 168·08 |
| 7 | 1 4 19·96 | 9 5 46·8 | 167·48 |
| 8 | 1 6 31·56 | 9 22 31·7 | 166·90 |
| 9 | 1 8 43·29 | 9 39 13·1 | 166·28 |
| 10 | 1 10 55·17 | 9 55 50·8 | 165·67 |
| 11 | 1 13 7·20 | 10 12 24·8 | 165·00 |
| 12 | 1 15 19·38 | 10 28 54·8 | 164·35 |
| 13 | 1 17 31·72 | 10 45 20·9 | 163·67 |
| 14 | 1 19 44·21 | 11 1 42·9 | 162·97 |
| 15 | 1 21 56·88 | 11 18 0·7 | 162·25 |
| 16 | 1 24 9·71 | 11 34 14·2 | 161·52 |
| 17 | 1 26 22·72 | 11 50 23·3 | 160·78 |
| 18 | 1 28 35·91 | 12 6 28·0 | 160·02 |
| 19 | 1 30 49·28 | 12 22 28·1 | 159·23 |
| 20 | 1 33 2·84 | 12 38 23·5 | 158·45 |
| 21 | 1 35 16·59 | 12 54 14·2 | 157·62 |
| 22 | 1 37 30·53 | 13 9 59·9 | 156·82 |
| 23 | 1 39 44·67 | N. 13 25 40·8 | 155·95 |
| | *MONDAY* 18. | | |
| 0 | 1 41 59·01 | N. 13 41 16·5 | 155·10 |
| 1 | 1 44 13·56 | 13 56 47·1 | 154·22 |
| 2 | 1 46 28·31 | 14 12 12·4 | 153·33 |
| 3 | 1 48 43·28 | 14 27 32·4 | 152·42 |
| 4 | 1 50 58·46 | 14 42 46·9 | 151·50 |
| 5 | 1 53 13·85 | 14 57 55·9 | 150·57 |
| 6 | 1 55 29·47 | 15 12 59·3 | 149·60 |
| 7 | 1 57 45·32 | 15 27 56·9 | 148·63 |
| 8 | 2 0 1·39 | 15 42 48·7 | 147·63 |
| 9 | 2 2 17·69 | 15 57 34·5 | 146·63 |
| 10 | 2 4 34·22 | 16 12 14·3 | 145·63 |
| 11 | 2 6 50·99 | 16 26 48·1 | 144·58 |
| 12 | 2 9 8·00 | 16 41 15·6 | 143·53 |
| 13 | 2 11 25·25 | 16 55 36·8 | 142·48 |
| 14 | 2 13 42·74 | 17 9 51·7 | 141·38 |
| 15 | 2 16 0·48 | 17 24 0·0 | 140·30 |
| 16 | 2 18 18·47 | 17 38 1·8 | 139·20 |
| 17 | 2 20 36·70 | 17 51 57·0 | 138·07 |
| 18 | 2 22 55·19 | 18 5 45·4 | 136·92 |
| 19 | 2 25 13·93 | 18 19 26·9 | 135·78 |
| 20 | 2 27 32·93 | 18 33 1·6 | 134·60 |
| 21 | 2 29 52·18 | 18 46 29·2 | 133·42 |
| 22 | 2 32 11·68 | 18 59 49·7 | 132·23 |
| 23 | 2 34 31·45 | 19 13 3·1 | 131·02 |
| 24 | 2 36 51·48 | N. 19 26 9·2 | |

| Hour. | Right Ascension. | Declination. |
|---|---|---|
| | *TUESDAY* 19. | |
| | h m s | ° ′ ″ |
| 0 | 2 36 51·48 | N. 19 26 9·2 |
| 1 | 2 39 11·77 | 19 39 8·0 |
| 2 | 2 41 32·32 | 19 51 59·3 |
| 3 | 2 43 53·14 | 20 4 43·1 |
| 4 | 2 46 14·22 | 20 17 19·3 |
| 5 | 2 48 35·56 | 20 29 47·8 |
| 6 | 2 50 57·17 | 20 42 8·5 |
| 7 | 2 53 19·04 | 20 54 21·3 |
| 8 | 2 55 41·18 | 21 6 26·3 |
| 9 | 2 58 3·59 | 21 18 23·2 |
| 10 | 3 0 26·26 | 21 30 12·0 |
| 11 | 3 2 49·19 | 21 41 52·6 |
| 12 | 3 5 12·39 | 21 53 25·0 |
| 13 | 3 7 35·85 | 22 4 49·0 |
| 14 | 3 9 59·58 | 22 16 4·7 |
| 15 | 3 12 23·57 | 22 27 11·8 |
| 16 | 3 14 47·81 | 22 38 10·4 |
| 17 | 3 17 12·32 | 22 49 0·3 |
| 18 | 3 19 37·09 | 22 59 41·6 |
| 19 | 3 22 2·11 | 23 10 14·0 |
| 20 | 3 24 27·38 | 23 20 37·6 |
| 21 | 3 26 52·91 | 23 30 52·3 |
| 22 | 3 29 18·68 | 23 40 58·0 |
| 23 | 3 31 44·71 | N. 23 50 54·7 |
| | *WEDNESDAY* 20. | |
| 0 | 3 34 10·98 | N. 24 0 42·2 |
| 1 | 3 36 37·49 | 24 10 20·6 |
| 2 | 3 39 4·24 | 24 19 49·6 |
| 3 | 3 41 31·23 | 24 29 9·4 |
| 4 | 3 43 58·45 | 24 38 19·8 |
| 5 | 3 46 25·90 | 24 47 20·8 |
| 6 | 3 48 53·58 | 24 56 12·2 |
| 7 | 3 51 21·49 | 25 4 54·1 |
| 8 | 3 53 49·61 | 25 13 26·4 |
| 9 | 3 56 17·95 | 25 21 48·9 |
| 10 | 3 58 46·50 | 25 30 1·8 |
| 11 | 4 1 15·26 | 25 38 4·9 |
| 12 | 4 3 44·22 | 25 45 58·1 |
| 13 | 4 6 13·38 | 25 53 41·4 |
| 14 | 4 8 42·74 | 26 1 14·8 |
| 15 | 4 11 12·28 | 26 8 38·2 |
| 16 | 4 13 42·01 | 26 15 51·6 |
| 17 | 4 16 11·92 | 26 22 54·8 |
| 18 | 4 18 41·99 | 26 29 48·0 |
| 19 | 4 21 12·24 | 26 36 30·9 |
| 20 | 4 23 42·65 | 26 43 3·7 |
| 21 | 4 26 13·22 | 26 49 26·2 |
| 22 | 4 28 43·93 | 26 55 38·4 |
| 23 | 4 31 14·79 | 27 1 40·3 |
| 24 | 4 33 45·79 | N. 27 7 31· |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *THURSDAY* 21. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 4 33 45 ·79 | N.27 7 31 ·8 | 56 ·85 |
| 1 | 4 36 16 ·92 | 27 13 12 ·9 | 55 ·12 |
| 2 | 4 38 48 ·18 | 27 18 43 ·6 | 53 ·37 |
| 3 | 4 41 19 ·55 | 27 24 3 ·8 | 51 ·63 |
| 4 | 4 43 51 ·03 | 27 29 13 ·6 | 49 ·87 |
| 5 | 4 46 22 ·62 | 27 34 12 ·8 | 48 ·10 |
| 6 | 4 48 54 ·31 | 27 39 1 ·4 | 46 ·35 |
| 7 | 4 51 26 ·09 | 27 43 39 ·5 | 44 ·60 |
| 8 | 4 53 57 ·95 | 27 48 7 ·1 | 42 ·82 |
| 9 | 4 56 29 ·89 | 27 52 24 ·0 | 41 ·05 |
| 10 | 4 59 1 ·89 | 27 56 30 ·3 | 39 ·27 |
| 11 | 5 1 33 ·96 | 28 0 25 ·9 | 37 ·50 |
| 12 | 5 4 6 ·09 | 28 4 10 ·9 | 35 ·72 |
| 13 | 5 6 38 ·27 | 28 7 45 ·2 | 33 ·93 |
| 14 | 5 9 10 ·48 | 28 11 8 ·8 | 32 ·15 |
| 15 | 5 11 42 ·73 | 28 14 21 ·7 | 30 ·38 |
| 16 | 5 14 14 ·99 | 28 17 24 ·0 | 28 ·58 |
| 17 | 5 16 47 ·28 | 28 20 15 ·5 | 26 ·80 |
| 18 | 5 19 19 ·57 | 28 22 56 ·3 | 25 ·02 |
| 19 | 5 21 51 ·86 | 28 25 26 ·4 | 23 ·23 |
| 20 | 5 24 24 ·15 | 28 27 45 ·8 | 21 ·45 |
| 21 | 5 26 56 ·42 | 28 29 54 ·5 | 19 ·67 |
| 22 | 5 29 28 ·66 | 28 31 52 ·5 | 17 ·88 |
| 23 | 5 32 0 ·87 | N.28 33 39 ·8 | 16 ·10 |
| | *FRIDAY* 22. | | |
| 0 | 5 34 33 ·04 | N.28 35 16 ·4 | 14 ·32 |
| 1 | 5 37 5 ·16 | 28 36 42 ·3 | 12 ·55 |
| 2 | 5 39 37 ·23 | 28 37 57 ·6 | 10 ·77 |
| 3 | 5 42 9 ·23 | 28 39 2 ·2 | 8 ·98 |
| 4 | 5 44 41 ·15 | 28 39 56 ·1 | 7 ·22 |
| 5 | 5 47 13 ·00 | 28 40 39 ·4 | 5 ·45 |
| 6 | 5 49 44 ·75 | 28 41 12 ·1 | 3 ·68 |
| 7 | 5 52 16 ·41 | 28 41 34 ·2 | 1 ·92 |
| 8 | 5 54 47 ·96 | 28 41 45 ·7 | 0 ·17 |
| 9 | 5 57 19 ·40 | 28 41 46 ·7 | 1 ·60 |
| 10 | 5 59 50 ·72 | 28 41 37 ·1 | 3 ·35 |
| 11 | 6 2 21 ·91 | 28 41 17 ·0 | 5 ·08 |
| 12 | 6 4 52 ·96 | 28 40 46 ·5 | 6 ·83 |
| 13 | 6 7 23 ·87 | 28 40 5 ·5 | 8 ·58 |
| 14 | 6 9 54 ·62 | 28 39 14 ·0 | 10 ·30 |
| 15 | 6 12 25 ·21 | 28 38 12 ·2 | 12 ·03 |
| 16 | 6 14 55 ·64 | 28 37 0 ·0 | 13 ·75 |
| 17 | 6 17 25 ·88 | 28 35 37 ·5 | 15 ·45 |
| 18 | 6 19 55 ·95 | 28 34 4 ·8 | 17 ·17 |
| 19 | 6 22 25 ·82 | 28 32 21 ·8 | 18 ·87 |
| 20 | 6 24 55 ·50 | 28 30 28 ·6 | 20 ·55 |
| 21 | 6 27 24 ·97 | 28 28 25 ·3 | 22 ·25 |
| | ·93 | 28 26 11 ·8 | 23 ·92 |
| | | 28 23 48 ·3 | 25 ·58 |
| | | 21 14 ·8 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SATURDAY* 23. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 6 34 52 ·08 | N.28 21 14 ·8 | 27 ·25 |
| 1 | 6 37 20 ·65 | 28 18 31 ·3 | 28 ·90 |
| 2 | 6 39 48 ·99 | 28 15 37 ·9 | 30 ·53 |
| 3 | 6 42 17 ·08 | 28 12 34 ·7 | 32 ·18 |
| 4 | 6 44 44 ·92 | 28 9 21 ·6 | 33 ·80 |
| 5 | 6 47 12 ·50 | 28 5 58 ·8 | 35 ·42 |
| 6 | 6 49 39 ·81 | 28 2 26 ·3 | 37 ·03 |
| 7 | 6 52 6 ·85 | 27 58 44 ·1 | 38 ·63 |
| 8 | 6 54 33 ·62 | 27 54 52 ·3 | 40 ·22 |
| 9 | 6 57 0 ·10 | 27 50 51 ·0 | 41 ·80 |
| 10 | 6 59 26 ·29 | 27 46 40 ·2 | 43 ·37 |
| 11 | 7 1 52 ·19 | 27 42 20 ·0 | 44 ·93 |
| 12 | 7 4 17 ·79 | 27 37 50 ·4 | 46 ·48 |
| 13 | 7 6 43 ·08 | 27 33 11 ·5 | 48 ·02 |
| 14 | 7 9 8 ·06 | 27 28 23 ·4 | 49 ·55 |
| 15 | 7 11 32 ·73 | 27 23 26 ·1 | 51 ·07 |
| 16 | 7 13 57 ·07 | 27 18 19 ·7 | 52 ·57 |
| 17 | 7 16 21 ·09 | 27 13 4 ·3 | 54 ·05 |
| 18 | 7 18 44 ·78 | 27 7 40 ·0 | 55 ·55 |
| 19 | 7 21 8 ·14 | 27 2 6 ·7 | 57 ·02 |
| 20 | 7 23 31 ·16 | 26 56 24 ·6 | 58 ·48 |
| 21 | 7 25 53 ·84 | 26 50 33 ·7 | 59 ·92 |
| 22 | 7 28 16 ·17 | 26 44 34 ·2 | 61 ·37 |
| 23 | 7 30 38 ·15 | N.26 38 26 ·0 | 62 ·78 |
| | *SUNDAY* 24. | | |
| 0 | 7 32 59 ·78 | N.26 32 9 ·3 | 64 ·20 |
| 1 | 7 35 21 ·05 | 26 25 44 ·1 | 65 ·58 |
| 2 | 7 37 41 ·96 | 26 19 10 ·6 | 66 ·98 |
| 3 | 7 40 2 ·50 | 26 12 28 ·7 | 68 ·37 |
| 4 | 7 42 22 ·68 | 26 5 38 ·5 | 69 ·72 |
| 5 | 7 44 42 ·49 | 25 58 40 ·2 | 71 ·07 |
| 6 | 7 47 1 ·92 | 25 51 33 ·8 | 72 ·40 |
| 7 | 7 49 20 ·99 | 25 44 19 ·4 | 73 ·73 |
| 8 | 7 51 39 ·67 | 25 36 57 ·0 | 75 ·03 |
| 9 | 7 53 57 ·98 | 25 29 26 ·8 | 76 ·35 |
| 10 | 7 56 15 ·91 | 25 21 48 ·7 | 77 ·62 |
| 11 | 7 58 33 ·45 | 25 14 3 ·0 | 78 ·90 |
| 12 | 8 0 50 ·61 | 25 6 9 ·6 | 80 ·17 |
| 13 | 8 3 7 ·38 | 24 58 8 ·6 | 81 ·40 |
| 14 | 8 5 23 ·76 | 24 50 0 ·2 | 82 ·65 |
| 15 | 8 7 39 ·76 | 24 41 44 ·3 | 83 ·85 |
| 16 | 8 9 55 ·36 | 24 33 21 ·2 | 85 ·07 |
| 17 | 8 12 10 ·57 | 24 24 50 ·8 | 86 ·27 |
| 18 | 8 14 25 ·39 | 24 16 13 ·2 | 87 ·43 |
| 19 | 8 16 39 ·82 | 24 7 28 ·6 | 88 ·62 |
| 20 | 8 18 53 ·85 | 23 58 36 ·9 | 89 ·77 |
| 21 | 8 21 7 ·49 | 23 49 38 ·3 | 90 ·90 |
| 22 | 8 23 20 ·74 | 23 40 32 ·9 | 92 ·02 |
| 23 | 8 25 33 ·59 | 23 31 20 ·8 | 93 ·15 |
| 24 | 8 27 46 ·04 | N.23 22 1 ·9 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *MONDAY* 25. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 8 27 46 ·04 | N.23 22 1 ·9 | 94 ·23 |
| 1 | 8 29 58 ·10 | 23 12 36 ·5 | 95 ·33 |
| 2 | 8 32 9 ·76 | 23 3 4 ·5 | 96 ·40 |
| 3 | 8 34 21 ·03 | 22 53 26 ·1 | 97 ·45 |
| 4 | 8 36 31 ·90 | 22 43 41 ·4 | 98 ·52 |
| 5 | 8 38 42 ·38 | 22 33 50 ·3 | 99 ·53 |
| 6 | 8 40 52 ·47 | 22 23 53 ·1 | 100 ·55 |
| 7 | 8 43 2 ·17 | 22 13 49 ·8 | 101 ·57 |
| 8 | 8 45 11 ·47 | 22 3 40 ·4 | 102 ·57 |
| 9 | 8 47 20 ·39 | 21 53 25 ·0 | 103 ·53 |
| 10 | 8 49 28 ·92 | 21 43 3 ·8 | 104 ·50 |
| 11 | 8 51 37 ·06 | 21 32 36 ·8 | 105 ·47 |
| 12 | 8 53 44 ·81 | 21 22 4 ·0 | 106 ·40 |
| 13 | 8 55 52 ·18 | 21 11 25 ·6 | 107 ·33 |
| 14 | 8 57 59 ·16 | 21 0 41 ·6 | 108 ·25 |
| 15 | 9 0 5 ·76 | 20 49 52 ·1 | 109 ·13 |
| 16 | 9 2 11 ·98 | 20 38 57 ·3 | 110 ·03 |
| 17 | 9 4 17 ·82 | 20 27 57 ·1 | 110 ·92 |
| 18 | 9 6 23 ·29 | 20 16 51 ·6 | 111 ·77 |
| 19 | 9 8 28 ·38 | 20 5 41 ·0 | 112 ·62 |
| 20 | 9 10 33 ·10 | 19 54 25 ·3 | 113 ·47 |
| 21 | 9 12 37 ·45 | 19 43 4 ·5 | 114 ·27 |
| 22 | 9 14 41 ·42 | 19 31 38 ·9 | 115 ·10 |
| 23 | 9 16 45 ·03 | N.19 20 8 ·3 | 115 ·88 |
| | *TUESDAY* 26. | | |
| 0 | 9 18 48 ·28 | N.19 8 33 ·0 | 116 ·67 |
| 1 | 9 20 51 ·17 | 18 56 53 ·0 | 117 ·43 |
| 2 | 9 22 53 ·69 | 18 45 8 ·4 | 118 ·20 |
| 3 | 9 24 55 ·86 | 18 33 19 ·2 | 118 ·95 |
| 4 | 9 26 57 ·67 | 18 21 25 ·5 | 119 ·68 |
| 5 | 9 28 59 ·13 | 18 9 27 ·4 | 120 ·42 |
| 6 | 9 31 0 ·25 | 17 57 24 ·9 | 121 ·12 |
| 7 | 9 33 1 ·02 | 17 45 18 ·2 | 121 ·82 |
| 8 | 9 35 1 ·44 | 17 33 7 ·3 | 122 ·50 |
| 9 | 9 37 1 ·52 | 17 20 52 ·3 | 123 ·18 |
| 10 | 9 39 1 ·27 | 17 8 33 ·2 | 123 ·83 |
| 11 | 9 41 0 ·68 | 16 56 10 ·2 | 124 ·50 |
| 12 | 9 42 59 ·76 | 16 43 43 ·2 | 125 ·13 |
| 13 | 9 44 58 ·51 | 16 31 12 ·4 | 125 ·77 |
| 14 | 9 46 56 ·94 | 16 18 37 ·8 | 126 ·38 |
| 15 | 9 48 55 ·04 | 16 5 59 ·5 | 126 ·98 |
| 16 | 9 50 52 ·83 | 15 53 17 ·6 | 127 ·58 |
| 17 | 9 52 50 ·30 | 15 40 32 ·1 | 128 ·15 |
| 18 | 9 54 47 ·47 | 15 27 43 ·2 | 128 ·73 |
| 19 | 9 56 44 ·32 | 15 14 50 ·8 | 129 ·28 |
| 20 | 9 58 40 ·87 | 15 1 55 ·1 | 129 ·83 |
| 21 | 10 0 37 ·11 | 14 48 56 ·1 | 130 ·35 |
| 22 | 10 2 33 ·06 | 14 35 54 ·0 | 130 ·88 |
| 23 | 10 4 28 ·72 | 14 22 48 ·7 | 131 ·40 |
| 24 | 10 6 24 ·08 | N.14 9 40 ·3 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *WEDNESDAY* 27. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 10 6 24 ·08 | N.14 9 40 ·3 | 131 ·88 |
| 1 | 10 8 19 ·16 | 13 56 29 ·0 | 132 ·38 |
| 2 | 10 10 13 ·95 | 13 43 14 ·7 | 132 ·87 |
| 3 | 10 12 8 ·47 | 13 29 57 ·5 | 133 ·32 |
| 4 | 10 14 2 ·71 | 13 16 37 ·6 | 133 ·78 |
| 5 | 10 15 56 ·68 | 13 3 14 ·9 | 134 ·23 |
| 6 | 10 17 50 ·37 | 12 49 49 ·5 | 134 ·65 |
| 7 | 10 19 43 ·81 | 12 36 21 ·6 | 135 ·08 |
| 8 | 10 21 36 ·98 | 12 22 51 ·1 | 135 ·50 |
| 9 | 10 23 29 ·90 | 12 9 18 ·1 | 135 ·92 |
| 10 | 10 25 22 ·56 | 11 55 42 ·6 | 136 ·28 |
| 11 | 10 27 14 ·97 | 11 42 4 ·9 | 136 ·68 |
| 12 | 10 29 7 ·14 | 11 28 24 ·8 | 137 ·05 |
| 13 | 10 30 59 ·07 | 11 14 42 ·5 | 137 ·42 |
| 14 | 10 32 50 ·76 | 11 0 58 ·0 | 137 ·77 |
| 15 | 10 34 42 ·21 | 10 47 11 ·4 | 138 ·12 |
| 16 | 10 36 33 ·44 | 10 33 22 ·7 | 138 ·45 |
| 17 | 10 38 24 ·44 | 10 19 32 ·0 | 138 ·77 |
| 18 | 10 40 15 ·22 | 10 5 39 ·4 | 139 ·08 |
| 19 | 10 42 5 ·78 | 9 51 44 ·9 | 139 ·38 |
| 20 | 10 43 56 ·12 | 9 37 48 ·6 | 139 ·67 |
| 21 | 10 45 46 ·26 | 9 23 50 ·6 | 139 ·95 |
| 22 | 10 47 36 ·19 | 9 9 50 ·9 | 140 ·23 |
| 23 | 10 49 25 ·92 | N. 8 55 49 ·5 | 140 ·50 |
| | *THURSDAY* 28. | | |
| 0 | 10 51 15 ·45 | N. 8 41 46 ·5 | 140 ·75 |
| 1 | 10 53 4 ·79 | 8 27 42 ·0 | 140 ·98 |
| 2 | 10 54 53 ·94 | 8 13 36 ·1 | 141 ·23 |
| 3 | 10 56 42 ·91 | 7 59 28 ·7 | 141 ·45 |
| 4 | 10 58 31 ·70 | 7 45 20 ·0 | 141 ·68 |
| 5 | 11 0 20 ·30 | 7 31 9 ·9 | 141 ·88 |
| 6 | 11 2 8 ·74 | 7 16 58 ·6 | 142 ·07 |
| 7 | 11 3 57 ·01 | 7 2 46 ·2 | 142 ·27 |
| 8 | 11 5 45 ·11 | 6 48 32 ·6 | 142 ·45 |
| 9 | 11 7 33 ·05 | 6 34 17 ·9 | 142 ·63 |
| 10 | 11 9 20 ·84 | 6 20 2 ·1 | 142 ·78 |
| 11 | 11 11 8 ·47 | 6 5 45 ·4 | 142 ·93 |
| 12 | 11 12 55 ·95 | 5 51 27 ·8 | 143 ·08 |
| 13 | 11 14 43 ·29 | 5 37 9 ·3 | 143 ·22 |
| 14 | 11 16 30 ·49 | 5 22 50 ·0 | 143 ·37 |
| 15 | 11 18 17 ·55 | 5 8 29 ·8 | 143 ·47 |
| 16 | 11 20 4 ·49 | 4 54 9 ·0 | 143 ·57 |
| 17 | 11 21 51 ·29 | 4 39 47 ·6 | 143 ·68 |
| 18 | 11 23 37 ·98 | 4 25 25 ·5 | 143 ·78 |
| 19 | 11 25 24 ·54 | 4 11 2 ·8 | 143 ·85 |
| 20 | 11 27 10 ·99 | 3 56 39 ·7 | 143 ·93 |
| 21 | 11 28 57 ·33 | 3 42 16 ·1 | 144 ·02 |
| 22 | 11 30 43 ·56 | 3 27 52 ·0 | 144 ·05 |
| 23 | 11 32 29 ·69 | 3 13 27 ·7 | 144 ·12 |
| 24 | 11 34 15 ·72 | N. 2 59 3 ·0 | |

## MEAN TIME.

## PHASES OF THE MOON.

| | d | h | m |
|---|---|---|---|
| ☾ *Last Quarter* | 6 | 6 | 40·6 |
| ● New Moon | 13 | 15 | 28·3 |
| ☽ *First Quarter* | 20 | 7 | 49·7 |
| ○ Full Moon | 27 | 20 | 35·5 |

| | d | h |
|---|---|---|
| ☾ Apogee | 3 | 23 |
| ☾ Perigee | 15 | 16 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III$^h$. | P.L. of diff. | VI$^h$. | P.L. of diff. | IX$^h$. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ |
| 1 | Pollux | W. | 53 44 32 | 2956 | 55 15 40 | 2964 | 56 46 38 | 2972 | 58 17 26 |
| | Regulus | W. | 17 0 2 | 2979 | 18 30 41 | 2984 | 20 1 14 | 2989 | 21 31 41 |
| | Jupiter | E. | 34 6 52 | 2979 | 32 36 13 | 2990 | 31 5 48 | 3001 | 29 35 36 |
| | Spica ♍ | E. | 37 7 24 | 2951 | 35 36 10 | 2961 | 34 5 8 | 2969 | 32 34 16 |
| | Antares | E. | 83 1 24 | 2952 | 81 30 11 | 2960 | 79 59 8 | 2968 | 78 28 15 |
| | Saturn | E. | 83 55 47 | 3009 | 82 25 45 | 3017 | 80 55 53 | 3026 | 79 26 12 |
| 2 | Pollux | W. | 65 49 2 | 3016 | 67 18 55 | 3022 | 68 48 40 | 3029 | 70 18 17 |
| | Regulus | W. | 29 2 10 | 3023 | 30 31 54 | 3030 | 32 1 30 | 3035 | 33 31 0 |
| | Spica ♍ | E. | 25 2 19 | 3013 | 23 32 23 | 3019 | 22 2 34 | 3026 | 20 32 54 |
| | Antares | E. | 70 56 19 | 3013 | 69 26 22 | 3020 | 67 56 34 | 3026 | 66 26 53 |
| | Saturn | E. | 72 0 16 | 3073 | 70 31 33 | 3080 | 69 2 59 | 3087 | 67 34 34 |
| | Sun | E. | 136 23 36 | 3415 | 135 1 36 | 3421 | 133 39 43 | 3426 | 132 17 56 |
| 3 | Pollux | W. | 77 44 44 | 3058 | 79 13 45 | 3062 | 80 42 41 | 3065 | 82 11 33 |
| | Regulus | W. | 40 57 1 | 3061 | 42 25 58 | 3065 | 43 54 50 | 3068 | 45 23 39 |
| | Antares | E. | 59 0 10 | 3056 | 57 31 6 | 3060 | 56 2 7 | 3063 | 54 33 12 |
| | Saturn | E. | 60 14 20 | 3123 | 58 46 38 | 3128 | 57 19 2 | 3133 | 55 51 32 |
| | Sun | E. | 125 30 32 | 3455 | 124 9 18 | 3459 | 122 48 8 | 3462 | 121 27 2 |
| 4 | Pollux | W. | 89 35 9 | 3077 | 91 3 47 | 3078 | 92 32 24 | 3077 | 94 1 2 |
| | Regulus | W. | 52 47 4 | 3078 | 54 15 40 | 3078 | 55 44 16 | 3078 | 57 12 52 |
| | Mars | W. | 20 58 22 | 3134 | 22 25 51 | 3125 | 23 53 30 | 3117 | 25 21 19 |
| | Antares | E. | 47 9 21 | 3074 | 45 40 40 | 3074 | 44 11 59 | 3075 | 42 43 19 |
| | Saturn | E. | 48 35 14 | 3156 | 47 8 12 | 3158 | 45 41 13 | 3162 | 44 14 18 |
| | Sun | E. | 114 42 9 | 3472 | 113 21 14 | 3472 | 112 0 19 | 3472 | 110 39 24 |
| 5 | Regulus | W. | 64 36 16 | 3068 | 66 5 5 | 3065 | 67 33 58 | 3061 | 69 2 56 |
| | Mars | W. | 32 42 29 | 3077 | 34 11 7 | 3070 | 35 39 53 | 3064 | 37 8 46 |
| | Jupiter | W. | 14 10 40 | 3186 | 15 37 6 | 3161 | 17 4 2 | 3141 | 18 31 22 |
| | Spica ♍ | W. | 10 34 43 | 3066 | 12 3 34 | 3062 | 13 32 30 | 3058 | 15 1 31 |
| | Antares | E. | 35 19 36 | 3065 | 33 50 44 | 3061 | 32 21 47 | 3058 | 30 52 46 |
| | Saturn | E. | 37 0 31 | 3178 | 35 33 56 | 3181 | 34 7 24 | 3184 | 32 40 56 |
| | α Aquilæ | E. | 89 13 19 | 3858 | 87 59 16 | 3857 | 86 45 12 | 3855 | 85 31 6 |
| | Sun | E. | 103 54 25 | 3460 | 102 33 16 | 3457 | 101 12 4 | 3452 | 99 50 46 |
| 6 | Regulus | W. | 76 29 20 | 3027 | 77 58 59 | 3019 | 79 28 48 | 3012 | 80 58 46 |
| | Mars | W. | 44 35 29 | 3018 | 46 5 19 | 3010 | 47 35 19 | 3001 | 49 5 31 |
| | Jupiter | W. | 25 52 31 | 3060 | 27 21 30 | 3049 | 28 50 42 | 3037 | 30 20 9 |
| | Spica ♍ | W. | 22 28 10 | 3025 | 23 57 52 | 3017 | 25 27 44 | 3010 | 26 57 45 |
| | Antares | E. | 23 26 8 | 3026 | 21 56 27 | 3018 | 20 26 36 | 3010 | 18 56 35 |
| | Saturn | E. | 25 30 18 | 3229 | 24 4 43 | 3243 | 22 39 25 | 3263 | 21 14 30 |
| | α Aquilæ | E. | 79 20 30 | 3855 | 78 6 25 | 3857 | 76 52 22 | 3860 | 75 38 22 |
| | Sun | E. | 93 2 42 | 3415 | 91 40 43 | 3407 | 90 18 34 | 3399 | 88 56 16 |
| 7 | Regulus | W. | 88 31 20 | 2956 | 90 2 28 | 2945 | 91 33 50 | 2934 | 93 5 26 |
| | Mars | W. | 56 39 41 | 2938 | 58 11 12 | 2926 | 59 42 58 | 2913 | 61 15 0 |
| | Jupiter | W. | 37 50 50 | 2969 | 39 21 42 | 2956 | 40 52 50 | 2943 | 42 24 14 |
| | Spica ♍ | W. | 34 30 35 | 2954 | 36 1 46 | 2943 | 37 33 10 | 2931 | 39 4 50 |
| | α Aquilæ | E. | 69 29 30 | 3895 | 68 16 5 | 3904 | 67 2 49 | 3914 | 65 49 43 |
| | Sun | E. | 82 1 59 | 3337 | 80 38 30 | 3325 | 79 14 47 | 3313 | 77 50 51 |
| 8 | Mars | W. | 68 59 20 | 2832 | 70 33 6 | 2818 | 72 7 11 | 2803 | 73 41 35 |
| | Jupiter | W. | 50 5 25 | 2861 | 51 38 34 | 2847 | 53 12 1 | 2832 | 54 45 47 |

## MEAN TIME.

### LUNAR DISTANCES.

| the Month. | Star's Name and Position. | | Midnight. | P. L. of diff. | XV$^h$. | P. L. of diff. | XVIII$^h$. | P. L. of diff. | XXI$^h$. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 1 | Pollux | W. | 59 48 4 | 2988 | 61 18 32 | 2995 | 62 48 51 | 3002 | 64 19 1 | 3009 |
| | Regulus | W. | 23 2 1 | 3000 | 24 32 14 | 3006 | 26 2 20 | 3012 | 27 32 18 | 3017 |
| | Jupiter | E. | 28 5 37 | 3023 | 26 35 53 | 3035 | 25 6 23 | 3047 | 23 37 8 | 3060 |
| | Spica ♍ | E. | 31 3 33 | 2985 | 29 33 1 | 2992 | 28 2 38 | 2999 | 26 32 24 | 3006 |
| | Antares | E. | 76 57 33 | 2985 | 75 27 1 | 2992 | 73 56 38 | 2999 | 72 26 24 | 3006 |
| | Saturn | E. | 77 56 41 | 3042 | 76 27 20 | 3050 | 74 58 9 | 3058 | 73 29 8 | 3065 |
| 2 | Pollux | W. | 71 47 47 | 3039 | 73 17 11 | 3045 | 74 46 28 | 3050 | 76 15 39 | 3055 |
| | Regulus | W. | 35 0 24 | 3045 | 36 29 41 | 3049 | 37 58 53 | 3053 | 39 28 0 | 3058 |
| | Spica ♍ | E. | 19 3 21 | 3037 | 17 33 54 | 3043 | 16 4 35 | 3048 | 14 35 21 | 3052 |
| | Antares | E. | 64 57 19 | 3038 | 63 27 53 | 3043 | 61 58 33 | 3048 | 60 29 19 | 3052 |
| | Saturn | E. | 66 6 17 | 3100 | 64 38 7 | 3105 | 63 10 4 | 3112 | 61 42 9 | 3117 |
| | Sun | E. | 130 56 16 | 3438 | 129 34 42 | 3443 | 128 13 14 | 3447 | 126 51 51 | 3451 |
| 3 | Pollux | W. | 83 40 21 | 3071 | 85 9 6 | 3073 | 86 37 49 | 3074 | 88 6 30 | 3076 |
| | Regulus | W. | 46 52 25 | 3073 | 48 21 8 | 3074 | 49 49 49 | 3077 | 51 18 27 | 3078 |
| | Antares | E. | 53 4 21 | 3068 | 51 35 32 | 3070 | 50 6 46 | 3073 | 48 38 3 | 3074 |
| | Saturn | E. | 54 24 7 | 3141 | 52 56 47 | 3145 | 51 29 32 | 3148 | 50 2 21 | 3152 |
| | Sun | E. | 120 5 59 | 3468 | 118 44 59 | 3470 | 117 24 1 | 3471 | 116 3 4 | 3472 |
| 4 | Pollux | W. | 95 29 41 | 3076 | 96 58 20 | 3074 | 98 27 1 | 3072 | 99 55 45 | 3070 |
| | Regulus | W. | 58 41 29 | 3077 | 60 10 7 | 3075 | 61 38 47 | 3073 | 63 7 30 | 3070 |
| | Mars | W. | 26 49 16 | 3103 | 28 17 22 | 3096 | 29 45 37 | 3090 | 31 13 59 | 3083 |
| | Antares | E. | 41 14 38 | 3073 | 39 45 56 | 3072 | 38 17 12 | 3069 | 36 48 25 | 3068 |
| | Saturn | E. | 42 47 26 | 3168 | 41 20 37 | 3170 | 39 53 52 | 3173 | 38 27 10 | 3175 |
| | Sun | E. | 109 18 29 | 3470 | 107 57 31 | 3469 | 106 36 32 | 3466 | 105 15 30 | 3463 |
| 5 | Regulus | W. | 70 32 0 | 3051 | 72 1 10 | 3046 | 73 30 26 | 3040 | 74 59 49 | 3034 |
| | Mars | W. | 38 37 48 | 3050 | 40 6 59 | 3043 | 41 36 19 | 3035 | 43 5 49 | 3026 |
| | Jupiter | W. | 19 59 2 | 3109 | 21 27 1 | 3096 | 22 55 16 | 3083 | 24 23 46 | 3071 |
| | Spica ♍ | W. | 16 30 38 | 3049 | 17 59 50 | 3043 | 19 29 10 | 3038 | 20 58 36 | 3031 |
| | Antares | E. | 29 23 39 | 3048 | 27 54 26 | 3043 | 26 25 7 | 3038 | 24 55 41 | 3032 |
| | Saturn | E. | 31 14 33 | 3193 | 29 48 16 | 3200 | 28 22 7 | 3208 | 26 56 7 | 3217 |
| | α Aquilæ | E. | 84 16 59 | 3853 | 83 2 51 | 3854 | 81 48 44 | 3853 | 80 34 36 | 3854 |
| | Sun | E. | 98 29 23 | 3441 | 97 7 53 | 3436 | 95 46 17 | 3430 | 94 24 34 | 3422 |
| 6 | Regulus | W. | 82 28 54 | 2995 | 83 59 13 | 2986 | 85 29 43 | 2977 | 87 0 25 | 2966 |
| | Mars | W. | 50 35 55 | 2981 | 52 6 32 | 2970 | 53 37 22 | 2960 | 55 8 25 | 2950 |
| | Jupiter | W. | 31 49 49 | 3016 | 33 19 42 | 3004 | 34 49 50 | 2992 | 36 20 13 | 2981 |
| | Spica ♍ | W. | 28 27 56 | 2993 | 29 58 18 | 2984 | 31 28 51 | 2974 | 32 59 37 | 2964 |
| | Antares | E. | 17 26 25 | 2993 | 15 56 4 | 2985 | 14 25 32 | 2976 | 12 54 49 | 2968 |
| | Saturn | E. | 19 50 4 | 3319 | 18 26 15 | 3361 | 17 3 14 | 3414 | 15 41 13 | 3488 |
| | α Aquilæ | E. | 74 24 25 | 3867 | 73 10 32 | 3873 | 71 56 45 | 3879 | 70 43 4 | 3886 |
| | Sun | E. | 87 33 47 | 3380 | 86 11 8 | 3370 | 84 48 17 | 3359 | 83 25 14 | 3349 |
| 7 | Regulus | W. | 94 37 17 | 2910 | 96 9 23 | 2898 | 97 41 45 | 2884 | 99 14 24 | 2871 |
| | Mars | W. | 62 47 18 | 2888 | 64 19 52 | 2874 | 65 52 44 | 2861 | 67 25 53 | 2847 |
| | Jupiter | W. | 43 55 54 | 2918 | 45 27 50 | 2904 | 47 0 4 | 2890 | 48 32 36 | 2876 |
| | Spica ♍ | W. | 40 36 44 | 2908 | 42 8 53 | 2894 | 43 41 19 | 2882 | 45 14 1 | 2869 |
| | α Aquilæ | E. | 64 36 50 | 3940 | 63 24 11 | 3956 | 62 11 48 | 3974 | 60 59 43 | 3995 |
| | Sun | E. | 76 26 39 | 3287 | 75 2 12 | 3273 | 73 37 29 | 3259 | 72 12 29 | 3245 |
| 8 | Mars | W. | 75 16 20 | 2772 | 76 51 25 | 2756 | 78 26 51 | 2739 | 80 2 39 | 2723 |
| | | | 56 19 54 | 2801 | 57 54 20 | 2785 | 59 29 8 | 2769 | 61 4 16 | 2753 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P. L. of diff. | III h. | P. L. of diff. | VI h. | P. L. of diff. | IX h. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ |
| 8 | Spica ♍ | W. | 46 47 0 | 2855 | 48 20 17 | 2841 | 49 53 51 | 2826 | 51 27 45 |
| | Sun | E. | 70 47 13 | 3229 | 69 21 38 | 3215 | 67 55 46 | 3199 | 66 29 35 |
| 9 | Mars | W. | 81 38 48 | 2707 | 83 15 19 | 2690 | 84 52 13 | 2673 | 86 29 29 |
| | Jupiter | W. | 62 39 46 | 2736 | 64 15 38 | 2720 | 65 51 52 | 2703 | 67 28 28 |
| | Spica ♍ | W. | 59 22 9 | 2734 | 60 58 4 | 2717 | 62 34 21 | 2701 | 64 11 0 |
| | Saturn | W. | 13 49 17 | 3303 | 15 13 25 | 3186 | 16 39 51 | 3092 | 18 8 10 |
| | Antares | W. | 13 28 26 | 2735 | 15 4 19 | 2719 | 16 40 34 | 2702 | 18 17 11 |
| | Sun | E. | 59 13 46 | 3098 | 57 45 34 | 3081 | 56 17 1 | 3063 | 54 48 6 |
| 10 | Mars | W. | 94 41 40 | 2568 | 96 21 19 | 2551 | 98 1 22 | 2533 | 99 41 49 |
| | Jupiter | W. | 75 37 16 | 2599 | 77 16 13 | 2582 | 78 55 33 | 2564 | 80 35 18 |
| | Spica ♍ | W. | 72 19 54 | 2599 | 73 58 51 | 2581 | 75 38 12 | 2564 | 77 17 57 |
| | Antares | W. | 26 26 1 | 2599 | 28 4 58 | 2582 | 29 44 18 | 2564 | 31 24 3 |
| | Saturn | W. | 25 48 57 | 2776 | 27 23 57 | 2742 | 28 59 41 | 2711 | 30 36 7 |
| | Sun | E. | 47 17 56 | 2954 | 45 46 45 | 2935 | 44 15 11 | 2917 | 42 43 14 |
| 11 | Mars | W. | 108 10 13 | 2429 | 109 53 7 | 2412 | 111 36 25 | 2395 | 113 20 7 |
| | Jupiter | W. | 89 0 7 | 2459 | 90 42 18 | 2443 | 92 24 52 | 2425 | 94 7 51 |
| | Spica ♍ | W. | 85 42 42 | 2460 | 87 24 51 | 2443 | 89 7 25 | 2426 | 90 50 22 |
| | Antares | W. | 39 48 46 | 2460 | 41 30 55 | 2443 | 43 13 28 | 2426 | 44 56 25 |
| | Saturn | W. | 38 47 29 | 2556 | 40 27 25 | 2533 | 42 7 52 | 2512 | 43 48 49 |
| | Sun | E. | 34 57 40 | 2809 | 33 23 24 | 2793 | 31 48 47 | 2776 | 30 13 47 |
| 15 | α Arietis | E. | 51 41 9 | 2155 | 49 51 33 | 2155 | 48 1 58 | 2157 | 46 12 25 |
| | Aldebaran | E. | 82 50 26 | 2181 | 81 1 29 | 2180 | 79 12 31 | 2179 | 77 23 32 |
| 16 | Sun | W. | 32 11 9 | 2428 | 33 54 4 | 2429 | 35 36 57 | 2431 | 37 19 47 |
| | α Arietis | E. | 37 6 9 | 2189 | 35 17 25 | 2199 | 33 28 56 | 2212 | 31 40 46 |
| | Aldebaran | E. | 68 19 5 | 2192 | 66 30 26 | 2197 | 64 41 54 | 2203 | 62 53 31 |
| | Pollux | E. | 111 25 41 | 2109 | 109 34 56 | 2112 | 107 44 15 | 2115 | 105 53 38 |
| 17 | Sun | W. | 45 52 39 | 2458 | 47 34 52 | 2465 | 49 16 55 | 2471 | 50 58 49 |
| | Aldebaran | E. | 53 54 30 | 2256 | 52 7 26 | 2269 | 50 20 41 | 2282 | 48 34 15 |
| | Pollux | E. | 96 42 12 | 2143 | 94 52 19 | 2150 | 93 2 36 | 2157 | 91 13 3 |
| 18 | Sun | W. | 59 25 35 | 2521 | 61 6 19 | 2530 | 62 46 50 | 2540 | 64 27 7 |
| | Aldebaran | E. | 39 48 8 | 2392 | 38 4 22 | 2417 | 36 21 12 | 2446 | 34 38 42 |
| | Pollux | E. | 82 8 12 | 2205 | 80 19 52 | 2214 | 78 31 46 | 2223 | 76 43 53 |
| 19 | Sun | W. | 72 44 58 | 2604 | 74 23 47 | 2615 | 76 2 21 | 2627 | 77 40 39 |
| | Aldebaran | E. | 26 19 3 | 2708 | 24 42 34 | 2781 | 23 7 41 | 2869 | 21 34 42 |
| | Pollux | E. | 67 48 12 | 2285 | 66 1 50 | 2295 | 64 15 43 | 2306 | 62 29 53 |
| | Regulus | E. | 104 36 49 | 2285 | 102 50 27 | 2295 | 101 4 20 | 2306 | 99 18 29 |
| 20 | Sun | W. | 85 48 11 | 2698 | 87 24 53 | 2710 | 89 1 20 | 2723 | 90 37 30 |
| | α Arietis | W. | 22 3 52 | 2565 | 23 43 35 | 2551 | 25 23 38 | 2542 | 27 3 53 |
| | Pollux | E. | 53 44 45 | 2373 | 52 0 32 | 2385 | 50 16 36 | 2396 | 48 32 56 |
| | Regulus | E. | 90 33 14 | 2372 | 88 48 59 | 2383 | 87 5 0 | 2395 | 85 21 18 |
| | Mars | E. | 120 12 0 | 2307 | 118 26 10 | 2316 | 116 40 34 | 2327 | 114 55 14 |
| 21 | Sun | W. | 98 34 25 | 2794 | 100 9 1 | 2806 | 101 43 21 | 2818 | 103 17 26 |
| | α Arietis | W. | 35 25 55 | 2541 | 37 6 11 | 2546 | 38 46 21 | 2552 | 40 26 22 |
| | Pollux | E. | 39 58 41 | 2465 | 38 16 39 | 2477 | 36 34 53 | 2488 | 34 53 23 |
| | Regulus | E. | 76 46 45 | 2462 | 75 4 38 | 2473 | 73 22 47 | 2484 | 71 41 11 |

## MEAN TIME.

### LUNAR DISTANCES.

| the Month. | Star's Name and Position. | | Midnight. | P. L. of diff. | XV h. | P. L. of diff. | XVIII h. | P. L. of diff. | XXI h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 8 | Spica ♍ | W. | 53 1 58 | 2797 | 54 36 30 | 2781 | 56 11 23 | 2766 | 57 46 36 | 2750 |
| | Sun | E. | 65 3 5 | 3166 | 63 36 15 | 3150 | 62 9 6 | 3133 | 60 41 36 | 3116 |
| 9 | Mars | W. | 88 7 8 | 2639 | 89 45 10 | 2621 | 91 23 36 | 2604 | 93 2 26 | 2586 |
| | Jupiter | W. | 69 5 27 | 2669 | 70 42 49 | 2652 | 72 20 34 | 2634 | 73 58 43 | 2616 |
| | Spica ♍ | W. | 65 48 1 | 2668 | 67 25 24 | 2650 | 69 3 11 | 2633 | 70 41 21 | 2616 |
| | Saturn | W. | 19 38 2 | 2954 | 21 9 12 | 2901 | 22 41 29 | 2855 | 24 14 46 | 2813 |
| | Antares | W. | 19 54 11 | 2668 | 21 31 34 | 2651 | 23 9 20 | 2634 | 24 47 29 | 2617 |
| | Sun | E. | 53 18 49 | 3027 | 51 49 10 | 3009 | 50 19 8 | 2991 | 48 48 44 | 2972 |
| 0 | Mars | W. | 101 22 40 | 2497 | 103 3 57 | 2480 | 104 45 38 | 2463 | 106 27 43 | 2446 |
| | Jupiter | W. | 82 15 28 | 2529 | 83 56 1 | 2511 | 85 36 59 | 2494 | 87 18 21 | 2477 |
| | Spica ♍ | W. | 78 58 6 | 2529 | 80 38 39 | 2512 | 82 19 36 | 2495 | 84 0 57 | 2477 |
| | Antares | W. | 33 4 11 | 2530 | 34 44 43 | 2512 | 36 25 40 | 2495 | 38 7 1 | 2477 |
| | Saturn | W. | 32 13 12 | 2653 | 33 50 55 | 2627 | 35 29 13 | 2602 | 37 8 5 | 2579 |
| | Sun | E. | 41 10 54 | 2880 | 39 38 10 | 2863 | 38 5 3 | 2845 | 36 31 33 | 2827 |
| 1 | Mars | W. | 115 4 13 | 2363 | 116 48 41 | 2346 | 118 33 33 | 2330 | 120 18 49 | 2313 |
| | Jupiter | W. | 95 51 13 | 2392 | 97 34 59 | 2377 | 99 19 7 | 2360 | 101 3 39 | 2345 |
| | Spica ♍ | W. | 92 33 42 | 2394 | 94 17 26 | 2378 | 96 1 33 | 2362 | 97 46 3 | 2346 |
| | Antares | W. | 46 39 46 | 2394 | 48 23 29 | 2378 | 50 7 35 | 2362 | 51 52 5 | 2346 |
| | Saturn | W. | 45 30 15 | 2471 | 47 12 9 | 2452 | 48 54 30 | 2433 | 50 37 18 | 2415 |
| | Sun | E. | 28 38 26 | 2744 | 27 2 45 | 2729 | 25 26 43 | 2715 | 23 50 23 | 2701 |
| 5 | α Arietis | E. | 44 22 55 | 2163 | 42 33 31 | 2167 | 40 44 14 | 2173 | 38 55 6 | 2180 |
| | Aldebaran | E. | 75 34 33 | 2180 | 73 45 36 | 2182 | 71 56 41 | 2185 | 70 7 51 | 2188 |
| 6 | Sun | W. | 39 2 33 | 2438 | 40 45 14 | 2442 | 42 27 49 | 2446 | 44 10 18 | 2452 |
| | α Arietis | E. | 29 52 58 | 2244 | 28 5 36 | 2264 | 26 18 43 | 2289 | 24 32 27 | 2318 |
| | Aldebaran | E. | 61 5 17 | 2217 | 59 17 15 | 2226 | 57 29 26 | 2235 | 55 41 51 | 2245 |
| | Pollux | E. | 104 3 7 | 2122 | 102 12 42 | 2127 | 100 22 24 | 2132 | 98 32 14 | 2137 |
| 7 | Sun | W. | 52 40 33 | 2486 | 54 22 6 | 2494 | 56 3 28 | 2503 | 57 44 37 | 2511 |
| | Aldebaran | E. | 46 48 11 | 2313 | 45 2 30 | 2331 | 43 17 15 | 2349 | 41 32 27 | 2369 |
| | Pollux | E. | 89 23 41 | 2171 | 87 34 30 | 2180 | 85 45 32 | 2187 | 83 56 45 | 2196 |
| 8 | Sun | W. | 66 7 11 | 2561 | 67 47 0 | 2572 | 69 26 34 | 2582 | 71 5 54 | 2593 |
| | Aldebaran | E. | 32 56 55 | 2512 | 31 15 58 | 2550 | 29 35 54 | 2596 | 27 56 53 | 2648 |
| | Pollux | E. | 74 56 15 | 2243 | 73 8 51 | 2253 | 71 21 43 | 2264 | 69 34 50 | 2274 |
| 9 | Sun | W. | 79 18 41 | 2651 | 80 56 27 | 2662 | 82 33 58 | 2675 | 84 11 12 | 2686 |
| | Aldebaran | E. | 20 3 57 | 3107 | 18 35 56 | 3276 | 17 11 16 | 3494 | 15 50 45 | 3785 |
| | Pollux | E. | 60 44 19 | 2328 | 58 59 1 | 2339 | 57 13 59 | 2351 | 55 29 14 | 2362 |
| | Regulus | E. | 97 32 54 | 2328 | 95 47 35 | 2338 | 94 2 31 | 2350 | 92 17 44 | 2362 |
| 0 | Sun | W. | 92 13 25 | 2747 | 93 49 3 | 2758 | 95 24 26 | 2770 | 96 59 33 | 2782 |
| | α Arietis | W. | 28 44 16 | 2534 | 30 24 42 | 2533 | 32 5 9 | 2535 | 33 45 34 | 2538 |
| | Pollux | E. | 46 49 32 | 2419 | 45 6 25 | 2431 | 43 23 34 | 2442 | 41 40 59 | 2454 |
| | Regulus | E. | 83 37 52 | 2417 | 81 54 41 | 2429 | 80 11 47 | 2439 | 78 29 8 | 2450 |
| | Mars | E. | 113 10 9 | 2347 | 111 25 18 | 2357 | 109 40 42 | 2367 | 107 56 20 | 2377 |
| 1 | Sun | W. | 104 51 16 | 2840 | 106 24 52 | 2852 | 107 58 12 | 2864 | 109 31 17 | 2875 |
| | α Arietis | W. | 42 6 15 | 2564 | 43 46 0 | 2572 | 45 25 34 | 2579 | 47 4 58 | 2586 |
| | Pollux | E. | 33 12 10 | 2511 | 31 31 12 | 2523 | 29 50 31 | 2534 | 28 10 5 | 2547 |
| | Regulus | E. | 69 59 50 | 2505 | 68 18 44 | 2516 | 66 37 53 | 2527 | 64 57 18 | 2538 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P. L. of diff. | III h. | P. L. of diff. | VI h. | P. L. of diff. | IX h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 21 | Mars | E. | 106 12 13 | 2388 | 104 28 21 | 2398 | 102 44 43 | 2408 | 101 1 19 | 2418 |
| 22 | Sun | W. | 111 4 8 | 2886 | 112 36 45 | 2898 | 114 9 7 | 2909 | 115 41 15 | 2920 |
| | α Arietis | W. | 48 44 12 | 2594 | 50 23 15 | 2602 | 52 2 8 | 2611 | 53 40 48 | 2618 |
| | Aldebaran | W. | 19 57 17 | 3215 | 21 23 8 | 3133 | 22 50 37 | 3069 | 24 19 24 | 3018 |
| | Pollux | E. | 26 29 57 | 2558 | 24 50 4 | 2570 | 23 10 28 | 2583 | 21 31 10 | 2596 |
| | Regulus | E. | 63 16 57 | 2548 | 61 36 50 | 2558 | 59 56 58 | 2569 | 58 17 21 | 2579 |
| | Mars | E. | 92 27 57 | 2467 | 90 45 58 | 2477 | 89 4 13 | 2487 | 87 22 41 | 2497 |
| | Jupiter | E. | 113 26 31 | 2535 | 111 46 6 | 2545 | 110 5 55 | 2555 | 108 25 58 | 2564 |
| 23 | Sun | W. | 123 18 29 | 2973 | 124 49 16 | 2983 | 126 19 50 | 2993 | 127 50 11 | 3003 |
| | α Arietis | W. | 61 51 23 | 2661 | 63 28 55 | 2669 | 65 6 16 | 2677 | 66 43 26 | 2686 |
| | Aldebaran | W. | 31 55 22 | 2887 | 33 27 58 | 2874 | 35 0 50 | 2865 | 36 33 54 | 2858 |
| | Regulus | E. | 50 2 41 | 2629 | 48 24 26 | 2639 | 46 46 24 | 2649 | 45 8 35 | 2658 |
| | Mars | E. | 78 58 19 | 2543 | 77 18 6 | 2552 | 75 38 5 | 2561 | 73 58 16 | 2569 |
| | Jupiter | E. | 100 9 31 | 2613 | 98 30 53 | 2621 | 96 52 27 | 2631 | 95 14 14 | 2640 |
| 24 | α Arietis | W. | 74 46 24 | 2728 | 76 22 26 | 2737 | 77 58 17 | 2745 | 79 33 57 | 2753 |
| | Aldebaran | W. | 44 20 45 | 2847 | 45 54 12 | 2847 | 47 27 39 | 2849 | 49 1 3 | 2851 |
| | Regulus | E. | 37 2 43 | 2706 | 35 26 11 | 2715 | 33 49 51 | 2724 | 32 13 43 | 2734 |
| | Mars | E. | 65 42 11 | 2613 | 64 3 33 | 2621 | 62 25 7 | 2629 | 60 46 52 | 2638 |
| | Jupiter | E. | 87 6 10 | 2684 | 85 29 9 | 2693 | 83 52 19 | 2702 | 82 15 41 | 2710 |
| | Spica ♍ | E. | 91 0 43 | 2699 | 89 24 2 | 2707 | 87 47 31 | 2716 | 86 11 12 | 2725 |
| 25 | α Arietis | W. | 87 29 34 | 2795 | 89 4 9 | 2802 | 90 38 34 | 2811 | 92 12 48 | 2818 |
| | Aldebaran | W. | 56 47 9 | 2869 | 58 20 7 | 2874 | 59 52 59 | 2880 | 61 25 44 | 2884 |
| | Pollux | W. | 12 47 4 | 2812 | 14 21 16 | 2811 | 15 55 29 | 2813 | 17 29 40 | 2816 |
| | Regulus | E. | 24 16 13 | 2782 | 22 41 22 | 2792 | 21 6 44 | 2803 | 19 32 20 | 2815 |
| | Mars | E. | 52 38 31 | 2680 | 51 1 24 | 2688 | 49 24 28 | 2696 | 47 47 43 | 2705 |
| | Jupiter | E. | 74 15 18 | 2751 | 72 39 46 | 2760 | 71 4 25 | 2768 | 69 29 15 | 2776 |
| | Spica ♍ | E. | 78 12 27 | 2766 | 76 37 15 | 2774 | 75 2 13 | 2782 | 73 27 22 | 2790 |
| | Saturn | E. | 126 1 2 | 2827 | 124 27 9 | 2834 | 122 53 25 | 2839 | 121 19 48 | 2846 |
| 26 | Aldebaran | W. | 69 7 50 | 2912 | 70 39 53 | 2919 | 72 11 48 | 2925 | 73 43 35 | 2931 |
| | Pollux | W. | 25 19 14 | 2841 | 26 52 48 | 2848 | 28 26 13 | 2855 | 29 59 29 | 2862 |
| | Mars | E. | 39 46 49 | 2748 | 38 11 13 | 2757 | 36 35 48 | 2766 | 35 0 36 | 2776 |
| | Jupiter | E. | 61 36 0 | 2815 | 60 1 51 | 2823 | 58 27 53 | 2831 | 56 54 6 | 2838 |
| | Spica ♍ | E. | 65 35 42 | 2829 | 64 1 52 | 2837 | 62 28 12 | 2845 | 60 54 42 | 2852 |
| | Saturn | E. | 113 33 52 | 2880 | 112 1 7 | 2886 | 110 28 30 | 2894 | 108 56 3 | 2900 |
| 27 | Aldebaran | W. | 81 20 31 | 2963 | 82 51 30 | 2970 | 84 22 20 | 2977 | 85 53 1 | 2984 |
| | Pollux | W. | 37 43 44 | 2895 | 39 16 9 | 2902 | 40 48 25 | 2909 | 42 20 32 | 2916 |
| | Jupiter | E. | 49 7 37 | 2877 | 47 34 49 | 2886 | 46 2 12 | 2893 | 44 29 44 | 2901 |
| | Spica ♍ | E. | 53 9 36 | 2889 | 51 37 3 | 2896 | 50 4 39 | 2904 | 48 32 25 | 2910 |
| | Antares | E. | 99 3 38 | 2889 | 97 31 5 | 2896 | 95 58 41 | 2903 | 94 26 26 | 2911 |
| | Saturn | E. | 101 15 54 | 2935 | 99 44 19 | 2941 | 98 12 52 | 2947 | 96 41 33 | 2954 |
| 28 | Aldebaran | W. | 93 24 21 | 3018 | 94 54 12 | 3026 | 96 23 53 | 3032 | 97 53 26 | 3039 |
| | Pollux | W. | 49 59 4 | 2949 | 51 30 21 | 2954 | 53 1 31 | 2961 | 54 32 32 | 2968 |
| | Regulus | W. | 13 15 51 | 2988 | 14 46 19 | 2987 | 16 16 48 | 2987 | 17 47 17 | 2989 |
| | Jupiter | E. | 36 49 57 | 2941 | 35 18 30 | 2950 | 33 47 14 | 2958 | 32 16 9 | 2966 |
| | Spica ♍ | E. | 40 53 24 | 2945 | 39 22 2 | 2951 | 37 50 48 | 2957 | 36 19 42 | 2964 |
| | Antares | E. | 86 47 26 | 2944 | 85 16 3 | 2951 | 83 44 49 | 2958 | 82 13 44 | 2964 |
| | Saturn | E. | 89 7 10 | 2988 | 87 36 42 | 2995 | 86 6 23 | 3002 | 84 36 12 | 3008 |

## MEAN TIME.

### LUNAR DISTANCES.

| Star's Name and Position. | | Midnight. | P.L. of diff. | XV$^h$. | P.L. of diff. | XVIII$^h$. | P.L. of diff. | XXI$^h$. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| ars | E. | 99 18 10 | 2429 | 97 35 16 | 2438 | 95 52 35 | 2448 | 94 10 9 | 2458 |
| UN | W. | 117 13 9 | 2931 | 118 44 49 | 2941 | 120 16 16 | 2952 | 121 47 29 | 2962 |
| Arietis | W. | 55 19 18 | 2627 | 56 57 36 | 2635 | 58 35 43 | 2643 | 60 13 39 | 2652 |
| ldebaran | W. | 25 49 14 | 2978 | 27 19 54 | 2946 | 28 51 14 | 2922 | 30 23 5 | 2902 |
| ollux | E. | 19 52 9 | 2610 | 18 13 27 | 2624 | 16 35 4 | 2640 | 14 57 3 | 2658 |
| egulus | E. | 56 37 57 | 2589 | 54 58 47 | 2600 | 53 19 52 | 2610 | 51 41 10 | 2619 |
| ars | E. | 85 41 23 | 2506 | 84 0 18 | 2515 | 82 19 26 | 2524 | 80 38 46 | 2533 |
| upiter | E. | 106 46 14 | 2574 | 105 6 43 | 2584 | 103 27 26 | 2593 | 101 48 22 | 2603 |
| UN | W. | 129 20 20 | 3013 | 130 50 16 | 3023 | 132 20 0 | 3034 | 133 49 31 | 3043 |
| Arietis | W. | 68 20 24 | 2695 | 69 57 11 | 2704 | 71 33 46 | 2711 | 73 10 11 | 2720 |
| ldebaran | W. | 38 7 7 | 2853 | 39 40 26 | 2849 | 41 13 50 | 2847 | 42 47 17 | 2846 |
| egulus | E. | 43 30 59 | 2668 | 41 53 36 | 2678 | 40 16 26 | 2687 | 38 39 28 | 2696 |
| ars | E. | 72 18 39 | 2578 | 70 39 14 | 2587 | 69 0 1 | 2596 | 67 21 0 | 2604 |
| upiter | E. | 93 36 13 | 2649 | 91 58 24 | 2658 | 90 20 48 | 2666 | 88 43 23 | 2675 |
| Arietis | W. | 81 9 26 | 2762 | 82 44 44 | 2770 | 84 19 51 | 2778 | 85 54 48 | 2786 |
| ldebaran | W. | 50 34 25 | 2854 | 52 7 43 | 2858 | 53 40 56 | 2861 | 55 14 5 | 2865 |
| egulus | E. | 30 37 48 | 2743 | 29 2 5 | 2753 | 27 26 35 | 2763 | 25 51 18 | 2772 |
| ars | E. | 59 8 49 | 2647 | 57 30 58 | 2655 | 55 53 18 | 2663 | 54 15 49 | 2672 |
| upiter | E. | 80 39 14 | 2719 | 79 2 59 | 2726 | 77 26 54 | 2735 | 75 51 1 | 2743 |
| pica ♍ | E. | 84 35 5 | 2733 | 82 59 9 | 2741 | 81 23 24 | 2750 | 79 47 50 | 2758 |
| Arietis | W. | 93 46 52 | 2827 | 95 20 45 | 2835 | 96 54 28 | 2842 | 98 28 1 | 2851 |
| ldebaran | W. | 62 58 23 | 2889 | 64 30 56 | 2895 | 66 3 21 | 2901 | 67 35 39 | 2906 |
| ollux | W. | 19 3 47 | 2820 | 20 37 49 | 2825 | 22 11 45 | 2831 | 23 45 33 | 2836 |
| egulus | E. | 17 58 12 | 2828 | 16 24 20 | 2842 | 14 50 46 | 2857 | 13 17 32 | 2876 |
| ars | E. | 46 11 10 | 2714 | 44 34 48 | 2722 | 42 58 37 | 2730 | 41 22 37 | 2739 |
| upiter | E. | 67 54 15 | 2784 | 66 19 26 | 2792 | 64 44 47 | 2799 | 63 10 18 | 2808 |
| pica ♍ | E. | 71 52 41 | 2798 | 70 18 11 | 2806 | 68 43 51 | 2814 | 67 9 41 | 2822 |
| aturn | E. | 119 46 20 | 2852 | 118 13 0 | 2859 | 116 39 49 | 2866 | 115 6 46 | 2873 |
| ldebaran | W. | 75 15 15 | 2938 | 76 46 46 | 2943 | 78 18 10 | 2950 | 79 49 25 | 2957 |
| ollux | W. | 31 32 37 | 2868 | 33 5 37 | 2875 | 34 38 28 | 2882 | 36 11 10 | 2888 |
| ars | E. | 33 25 36 | 2785 | 31 50 48 | 2795 | 30 16 14 | 2806 | 28 41 54 | 2818 |
| upiter | E. | 55 20 28 | 2846 | 53 47 0 | 2855 | 52 13 43 | 2862 | 50 40 35 | 2870 |
| pica ♍ | E. | 59 21 22 | 2859 | 57 48 11 | 2867 | 56 15 10 | 2874 | 54 42 18 | 2882 |
| aturn | E. | 107 23 44 | 2906 | 105 51 33 | 2913 | 104 19 31 | 2920 | 102 47 38 | 2928 |
| ldebaran | W. | 87 23 34 | 2990 | 88 53 59 | 2997 | 90 24 15 | 3005 | 91 54 22 | 3011 |
| ollux | W. | 43 52 31 | 2922 | 45 24 22 | 2928 | 46 56 5 | 2936 | 48 27 38 | 2942 |
| upiter | E. | 42 57 27 | 2909 | 41 25 19 | 2916 | 39 53 21 | 2925 | 38 21 34 | 2933 |
| pica ♍ | E. | 47 0 19 | 2917 | 45 28 22 | 2924 | 43 56 34 | 2931 | 42 24 55 | 2938 |
| ntares | E. | 92 54 21 | 2918 | 91 22 25 | 2924 | 89 50 36 | 2931 | 88 18 56 | 2938 |
| aturn | E. | 95 10 23 | 2961 | 93 39 22 | 2969 | 92 8 30 | 2975 | 90 37 46 | 2981 |
| ldebaran | W. | 99 22 51 | 3047 | 100 52 6 | 3053 | 102 21 13 | 3060 | 103 50 12 | 3067 |
| ollux | W. | 56 3 25 | 2974 | 57 34 11 | 2980 | 59 4 49 | 2986 | 60 35 19 | 2991 |
| egulus | W. | 19 17 44 | 2992 | 20 48 7 | 2996 | 22 18 25 | 2999 | 23 48 39 | 3003 |
| upiter | E. | 30 45 14 | 2976 | 29 14 31 | 2985 | 27 44 0 | 2995 | 26 13 41 | 3005 |
| pica ♍ | E. | 34 48 44 | 2971 | 33 17 55 | 2977 | 31 47 13 | 2982 | 30 16 38 | 2989 |
| ntares | E. | 80 42 46 | 2970 | 79 11 56 | 2977 | 77 41 14 | 2983 | 76 10 40 | 2989 |
| aturn | E. | 82 [illegible] | [illegible] | [illegible] 36 14 | 3021 | 80 6 27 | 3027 | 78 36 48 | 3034 |

## CONFIGURATIONS OF THE SATELLITES OF JUPITE

At 15h, Mean Time.

| Day of the Month. | West. | | | | | | | | | | | | | | | | | | East. | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | | | | | | | | | ·2 1· | ○ | | | | ·4 | | 3· | | | | | |
| 2 | | | | | | | | | | | | | | | | | | 3· | ○ | | | ·1 | | | ·2 | | | ·4 | | |
| 3 | ○ | 2· | | | | | | | | | 3· | | | | 1· | | | | ○ | | | | | | | | | | | ·4 |
| 4 | | | | | | | | | | ·3 | | | | ·2 | | | | | ○ | | | 1· | | | | | | | | |
| 5 | | | | | | | | | | | | | | | ·3 | ·1 | | | ○ | | | ·2 | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | ○ | | 1· | ·3 2· | | | | | | | | 4· |
| 7 | ·1 | ● | | | | | | | | | | | | 2· | | | | | ○ | | | | | | | | | 4· ·3 | | |
| 8 | 1· | ○ | | | | | | | | | | | | | | ·2 | | | ○ | | | | 4· | | | 3· | | | | |
| 9 | | | | | | | | | | | | | | | | | 4· | 3 | ○· | | ·1 | | | | ·2 | | | | | |
| 10 | | | | | | | | | | | 4· | 3· | | | 1· | | | | ○ | 2· | | | | | | | | | | |
| 11 | | | | | | | 4· | | | .3 | | | | .2 | | | | | ○ | | | | ·1 | | | | | | | |
| 12 | | | | 4· | | | | | | | | | | ·3 | | ·1 | | | ○ | ·2 | | | | | | | | | | |
| 13 | | | .4 | | | | | | | | | | | | | | | | ○ | | | ·3 1· | | | 2· | | | | | |
| 14 | | | | | ·4 | | | | | | | | | | 2· | | ·1 | | ○ | | | | | | | | ·3 | | | |
| 15 | | | | | | | | ·4 | | | | | | | | ·2 | | | ○ | | | | | | | | 3· | | | |
| 16 | | | | | | | | | | | | | ·4 | | | | | | ○ | | ·1 3· | | | | ·2 | | | | | |
| 17 | | | | | | | | | | | | | 3· | | | | 1· | | ·○ | 4 | 2· | | | | | | | | | |
| 18 | | | | | | | | | | .3 | | | 2· | | | | | | ○ | | | | ·1 | | | ·4 | | | | |
| 19 | ● | ·2 | | | | | | | | | | | ·3 | | | .1 | | | ○ | | | | | | | | | | ·4 | |
| 20 | | | | | | | | | | | | | | | | | | | ○ | | ·3 | 1· | | | 2· | | | | | ·4 |
| 21 | | | | | | | | | | | | | | | | | ·1 2· | | ○ | | | | | | | | ·3 | | | |
| 22 | | | | | | | | | | | | | | | ·2 | | | | ○ | 1· | | | | | | | 3· | | | 4· |
| 23 | ·1 | ● | | | | | | | | | | | | | | | | | ○ | | | 3· | ·2 | | | | | | 4· | |
| 24 | | | | | | | | | | | | | | 3· | | | 1· | | ○ | | 2· | | | | | 4· | | | | |
| 25 | | | | | | | | | | 3· | | | 2· | | | | | | ○ | | 4· | ·1 | | | | | | | | |
| 26 | | | | | | | | | | | | ·3 | | | 4· | 1· | | | ○ | | | | | | | | | | | |
| 27 | | | | | | | | | 4· | | | | | | | | | | ○ | | | 1· | | 2· | | | | | | |
| 28 | | | | | 4· | | | | | | | | | | | ·1 | 2· | | ○ | | | | | | | ·3 | | | | |

This Table represents, at 15h after *Mean Noon* of each day of the month, the relative of the images of Jupiter and his Satellites, as they would appear (disregarding their lat an inverting telescope. Jupiter is indicated by the white circles (○) in the centre of t the Satellites by points. The numerals 1, 2, 3, and 4, annexed to the points, serve to d the Satellites from each other; and their positions are such as to indicate the directions of lites' motions, which are in all cases to be considered as *towards the numerals.* When a S at its greatest elongation, the point is placed above or below the centre of the numeral. circle (○) at the left or right hand of the page, denotes that the Satellite placed by the s *on* the disc of Jupiter, and a black circle (●) that it is either *behind* the disc, or in the s Jupiter.

## ECLIPSES OF THE SATELLITES OF JUPITER.

| ILLITE. | Day of the Month. | Mean Time. | Sidereal Time. | PHASE as seen in an inverting Telescope. |
|---|---|---|---|---|
| | | h m s | h m s | |
| I. | 2 | 7 27 15 ·1 | 4 16 27 ·0 | Im. |
| | 4 | 1 55 38 ·3 | 22 51 48 ·9 | Im. |
| | 5 | 20 23 56 ·2 | 17 27 5 ·4 | Im. |
| | 7* | 14 52 19 ·5 | 12 2 27 ·3 | Im. |
| | 9 | 9 20 38 ·0 | 6 37 44 ·4 | Im. |
| | 11 | 3 49 0 ·9 | 1 13 6 ·0 | Im. |
| | 12 | 22 17 20 ·1 | 19 48 23 ·8 | Im. i |
| | 14* | 16 45 43 ·9 | 14 23 46 ·3 | Im. *  |
| | 16* | 11 14 2 ·7 | 8 59 3 ·6 | Im. |
| | 18 | 5 42 26 ·7 | 3 34 26 ·3 | Im. |
| | 20 | 0 10 46 ·7 | 22 9 44 ·9 | Im. |
| | 21 | 18 39 10 ·5 | 16 45 7 ·3 | Im. |
| | 23* | 13 7 31 ·1 | 11 20 26 ·6 | Im. |
| | 25 | 7 35 55 ·8 | 5 55 49 ·9 | Im. |
| | 27 | 2 4 16 ·2 | 0 31 8 ·9 | Im. |
| | 28 | 20 32 41 ·3 | 19 6 32 ·7 | Im. |
| I. | 1* | 17 4 30 ·8 | 13 51 21 ·0 | Im. |
| | 5 | 6 21 22 ·7 | 3 22 13 ·5 | Im. |
| | 8 | 19 38 8 ·9 | 16 53 0 ·2 | Im. i |
| | 12 | 8 55 7 ·4 | 6 23 59 ·4 | Im. *  |
| | 15 | 22 11 59 ·6 | 19 54 52 ·1 | Im. |
| | 19* | 11 29 6 ·7 | 9 25 59 ·8 | Im. |
| | 23 | 0 46 2 ·3 | 22 56 55 ·9 | Im. |
| | 26* | 14 3 17 ·6 | 12 28 11 ·9 | Im. |
| II. | 5 | 21 50 8 ·9 | 18 53 32 ·2 | Im. |
| | 6 | 0 33 53 ·4 | 21 37 43 ·6 | Em. i e |
| | 13 | 1 48 21 ·0 | 23 19 59 ·3 | Im. * * |
| | 13 | 4 31 17 ·2 | 2 3 22 ·4 | Em.  |
| | 20 | 5 46 7 ·6 | 3 46 0 ·9 | Im. |
| | 20 | 8 28 12 ·3 | 6 28 32 ·2 | Em. |
| | 27 | 9 44 8 ·5 | 8 12 16 ·9 | Im. |
| | 27* | 12 25 27 ·9 | 10 54 2 ·8 | Em. |

## APPROXIMATE SIDEREAL TIMES

OF THE

## OCCULTATIONS OF JUPITER'S SATELLITES BY JUPITER,

AND OF THE

## TRANSITS OF THE SATELLITES AND THEIR SHADOWS OVER THE DISC OF THE PLANET.

| Satellite. | Occultations. | | Transits of Satellites. | | Transits of Shad | |
|---|---|---|---|---|---|---|
| | Immersion. | Emersion. | Ingress. | Egress. | Ingress. | Eg |
| | d h m | d h m | d h m | d h m | d h m | d |
| I. | | 2 7 36 | 1 7 59 | 1* 10 13 | 1 6 51 | 1* |
| | | 4 2 10 | 3 2 34 | 3 4 47 | 3 1 26 | 3 |
| | | 5 20 44 | 5 21 8 | 5 23 21 | 4 20 2 | 5 |
| | | 7* 15 18 | 6* 15 42 | 6 17 56 | 6* 14 37 | 6 |
| | | 9* 9 53 | 8* 10 16 | 8* 12 30 | 8* 9 12 | 8* |
| | In | 11 4 26 | 10 4 50 | 10 7 4 | 10 3 47 | 10 |
| | | 13 23 0 | 12 23 24 | 12 1 38 | 12 22 22 | 12 |
| | the | 14 17 34 | 13 17 58 | 13 20 11 | 13 16 58 | 13 |
| | | 16* 12 8 | 15* 12 32 | 15* 14 45 | 15* 11 33 | 15* |
| | Shadow. | 18 6 42 | 17 7 6 | 17* 9 19 | 17 6 8 | 17 |
| | | 20 1 16 | 19 1 40 | 19 3 53 | 19 0 44 | 19 |
| | | 21 19 49 | 20 20 13 | 21 22 26 | 20 19 19 | 20 |
| | | 23* 14 23 | 22* 14 47 | 22 17 0 | 22* 13 54 | 22* |
| | | 25* 8 56 | 24* 9 20 | 24* 11 33 | 24 8 29 | 24* |
| | | 27 3 30 | 26 3 54 | 26 6 7 | 26 3 5 | 26 |
| | | 28 22 3 | 27 22 27 | 28 0 40 | 27 21 40 | 28 |
| II. | | 1 18 31 | 3* 11 18 | 3* 13 42 | 3* 9 1 | 3* |
| | | 5 7 58 | 7 0 45 | 7 3 9 | 7 22 33 | 7 |
| | In | 9 21 24 | 10* 14 12 | 10 16 35 | 10* 12 4 | 10* |
| | | 12* 10 50 | 14 3 38 | 14 6 1 | 14 1 36 | 14 |
| | the | 16 0 14 | 17 17 4 | 17 19 26 | 17* 15 7 | 17 |
| | | 19* 13 39 | 21 6 29 | 21* 8 51 | 21 4 39 | 21 |
| | Shadow. | 23 3 4 | 24 19 53 | 24 22 15 | 24 18 10 | 24 |
| | | 26* 16 27 | 28* 9 17 | 28* 11 39 | 28 7 41 | 28* |
| III. | 6 23 23 | 6 1 55 | 2* 9 12 | 2* 11 45 | 2 4 30 | 2 |
| | 13 3 29 | 13 5 59 | 9* 13 20 | 9* 15 51 | 9* 8 56 | 9* |
| | 20 7 30 | 20* 9 59 | 16 17 23 | 16 19 53 | 16* 13 21 | 16 |
| | 27* 11 27 | 27* 13 55 | 23 21 23 | 24 23 51 | 23 17 47 | 23 |

| For correcting the Places of the Fixed Stars. At Mean Midnight, Logarithm of | | | | Mean Time of Transit of the First Point of Aries. | Mean Equinoctial Time, adding 0d·536178. | From Mean Noon of January 1. | |
|---|---|---|---|---|---|---|---|
| A | B | C | D | | Days. | Day of the Year. | Fraction of the Year. |
| | | | | h m s | | | |
| −1 ·1011 | +1 ·1763 | +9 ·1041 | −0 ·9592 | 3 15 25 ·99 | 315 | 31 | ·085 |
| 1 ·1094 | 1 ·1691 | 9 ·1146 | 0 ·9601 | 3 11 30 ·09 | 316 | 32 | ·088 |
| 1 ·1173 | 1 ·1617 | 9 ·1248 | 0 ·9610 | 3 7 34 ·18 | 317 | 33 | ·090 |
| −1 ·1250 | +1 ·1540 | +9 ·1346 | −0 ·9619 | 3 3 38 ·28 | 318 | 34 | ·093 |
| 1 ·1324 | 1 ·1460 | 9 ·1440 | 0 ·9627 | 2 59 42 ·37 | 319 | 35 | ·096 |
| 1 ·1395 | 1 ·1378 | 9 ·1532 | 0 ·9636 | 2 55 46 ·46 | 320 | 36 | ·099 |
| −1 ·1464 | +1 ·1292 | +9 ·1622 | −0 ·9645 | 2 51 50 ·55 | 321 | 37 | ·101 |
| 1 ·1530 | 1 ·1204 | 9 ·1709 | 0 ·9654 | 2 47 54 ·63 | 322 | 38 | ·104 |
| 1 ·1594 | 1 ·1112 | 9 ·1793 | 0 ·9663 | 2 43 58 ·72 | 323 | 39 | ·107 |
| −1 ·1656 | +1 ·1017 | +9 ·1874 | −0 ·9671 | 2 40 2 ·81 | 324 | 40 | ·110 |
| 1 ·1716 | 1 ·0918 | 9 ·1953 | 0 ·9680 | 2 36 6 ·89 | 325 | 41 | ·112 |
| 1 ·1773 | 1 ·0816 | 9 ·2030 | 0 ·9688 | 2 32 10 ·98 | 326 | 42 | ·115 |
| −1 ·1829 | +1 ·0710 | +9 ·2105 | −0 ·9696 | 2 28 15 ·07 | 327 | 43 | ·118 |
| 1 ·1882 | 1 ·0600 | 9 ·2177 | 0 ·9704 | 2 24 19 ·16 | 328 | 44 | ·120 |
| 1 ·1933 | 1 ·0486 | 9 ·2248 | 0 ·9713 | 2 20 23 ·25 | 329 | 45 | ·123 |
| −1 ·1983 | +1 ·0367 | +9 ·2317 | −0 ·9720 | 2 16 27 ·35 | 330 | 46 | ·126 |
| 1 ·2030 | 1 ·0244 | 9 ·2384 | 0 ·9728 | 2 12 31 ·45 | 331 | 47 | ·129 |
| 1 ·2075 | 1 ·0116 | 9 ·2449 | 0 ·9736 | 2 8 35 ·54 | 332 | 48 | ·131 |
| −1 ·2119 | +0 ·9982 | +9 ·2513 | −0 ·9743 | 2 4 39 ·64 | 333 | 49 | ·134 |
| 1 ·2161 | 0 ·9843 | 9 ·2576 | 0 ·9750 | 2 0 43 ·73 | 334 | 50 | ·137 |
| 1 ·2201 | 0 ·9698 | 9 ·2637 | 0 ·9757 | 1 56 47 ·81 | 335 | 51 | ·140 |
| −1 ·2240 | +0 ·9547 | +9 ·2696 | −0 ·9764 | 1 52 51 ·90 | 336 | 52 | ·142 |
| 1 ·2277 | 0 ·9389 | 9 ·2754 | 0 ·9771 | 1 48 55 ·98 | 337 | 53 | ·145 |
| 1 ·2312 | 0 ·9224 | 9 ·2811 | 0 ·9777 | 1 45 0 ·07 | 338 | 54 | ·148 |
| −1 ·2345 | +0 ·9051 | +9 ·2866 | −0 ·9783 | 1 41 4 ·16 | 339 | 55 | ·151 |
| 1 ·2377 | 0 ·8870 | 9 ·2920 | 0 ·9789 | 1 37 8 ·25 | 340 | 56 | ·153 |
| 1 ·2407 | 0 ·8679 | 9 ·2973 | 0 ·9795 | 1 33 12 ·34 | 341 | 57 | ·156 |
| 1 ·2436 | 0 ·8478 | 9 ·3026 | 0 ·9800 | 1 29 16 ·44 | 342 | 58 | ·159 |
| −1 ·2463 | +0 ·8267 | +9 ·3077 | −0 ·9806 | 1 25 20 ·53 | 343 | 59 | ·162 |

## AT APPARENT NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | Diff. for 1 hour. | THE SUN'S Apparent Declination. | Diff. for 1 hour. | Sidereal Time of the Semidiam. passing the Meridian.* | Equation of Time, *to be added to Apparent Time.* |
|---|---|---|---|---|---|---|---|
| | | h m s | s | ° ′ ″ | ″ | m s | m s |
| Frid. | 1 | 22 47 8 ·85 | 9 ·351 | S. 7 43 32 ·5 | 56 ·98 | 1 5 ·38 | 12 41 ·32 |
| Sat. | 2 | 22 50 53 ·27 | 9 ·330 | 7 20 45 ·0 | 57 ·24 | 1 5 ·31 | 12 29 ·23 |
| *Sun.* | 3 | 22 54 37 ·20 | 9 ·310 | 6 57 51 ·3 | 57 ·49 | 1 5 ·24 | 12 16 ·64 |
| Mon. | 4 | 22 58 20 ·65 | 9 ·292 | 6 34 51 ·5 | 57 ·72 | 1 5 ·17 | 12 3 ·57 |
| Tues. | 5 | 23 2 3 ·66 | 9 ·274 | 6 11 46 ·3 | 57 ·95 | 1 5 ·10 | 11 50 ·06 |
| Wed. | 6 | 23 5 46 ·24 | 9 ·257 | 5 48 35 ·8 | 58 ·14 | 1 5 ·04 | 11 36 ·13 |
| Thur. | 7 | 23 9 28 ·42 | 9 ·242 | 5 25 20 ·4 | 58 ·33 | 1 4 ·98 | 11 21 ·79 |
| Frid. | 8 | 23 13 10 ·22 | 9 ·226 | 5 2 0 ·6 | 58 ·50 | 1 4 ·92 | 11 7 ·07 |
| Sat. | 9 | 23 16 51 ·65 | 9 ·211 | 4 38 36 ·7 | 58 ·65 | 1 4 ·86 | 10 51 ·98 |
| *Sun.* | 10 | 23 20 32 ·72 | 9 ·198 | 4 15 9 ·1 | 58 ·78 | 1 4 ·81 | 10 36 ·54 |
| Mon. | 11 | 23 24 13 ·47 | 9 ·185 | 3 51 38 ·3 | 58 ·90 | 1 4 ·76 | 10 20 ·77 |
| Tues. | 12 | 23 27 53 ·90 | 9 ·172 | 3 28 4 ·6 | 59 ·01 | 1 4 ·71 | 10 4 ·69 |
| Wed. | 13 | 23 31 34 ·03 | 9 ·160 | 3 4 28 ·4 | 59 ·10 | 1 4 ·67 | 9 48 ·32 |
| Thur. | 14 | 23 35 13 ·88 | 9 ·150 | 2 40 50 ·1 | 59 ·16 | 1 4 ·63 | 9 31 ·67 |
| Frid. | 15 | 23 38 53 ·47 | 9 ·140 | 2 17 10 ·2 | 59 ·22 | 1 4 ·59 | 9 14 ·75 |
| Sat. | 16 | 23 42 32 ·82 | 9 ·130 | 1 53 29 ·0 | 59 ·26 | 1 4 ·56 | 8 57 ·59 |
| *Sun.* | 17 | 23 46 11 ·94 | 9 ·121 | 1 29 46 ·8 | 59 ·28 | 1 4 ·53 | 8 40 ·21 |
| Mon. | 18 | 23 49 50 ·85 | 9 ·113 | 1 6 4 ·1 | 59 ·28 | 1 4 ·50 | 8 22 ·62 |
| Tues. | 19 | 23 53 29 ·57 | 9 ·106 | 0 42 21 ·3 | 59 ·27 | 1 4 ·48 | 8 4 ·83 |
| Wed. | 20 | 23 57 8 ·12 | 9 ·100 | S. 0 18 38 ·8 | 59 ·25 | 1 4 ·46 | 7 46 ·88 |
| Thur. | 21 | 0 0 46 ·52 | 9 ·094 | N. 0 5 3 ·2 | 59 ·20 | 1 4 ·44 | 7 28 ·77 |
| Frid. | 22 | 0 4 24 ·78 | 9 ·089 | 0 28 44 ·1 | 59 ·15 | 1 4 ·42 | 7 10 ·52 |
| Sat. | 23 | 0 8 2 ·92 | 9 ·085 | 0 52 23 ·6 | 59 ·07 | 1 4 ·41 | 6 52 ·16 |
| *Sun.* | 24 | 0 11 40 ·97 | 9 ·082 | 1 16 1 ·3 | 58 ·99 | 1 4 ·40 | 6 33 ·70 |
| Mon. | 25 | 0 15 18 ·95 | 9 ·080 | 1 39 37 ·0 | 58 ·88 | 1 4 ·39 | 6 15 ·17 |
| Tues. | 26 | 0 18 56 ·86 | 9 ·078 | 2 3 10 ·2 | 58 ·77 | 1 4 ·39 | 5 56 ·58 |
| Wed. | 27 | 0 22 34 ·74 | 9 ·078 | 2 26 40 ·6 | 58 ·64 | 1 4 ·39 | 5 37 ·97 |
| Thur. | 28 | 0 26 12 ·62 | 9 ·079 | 2 50 7 ·9 | 58 ·50 | 1 4 ·39 | 5 19 ·34 |
| Frid. | 29 | 0 29 50 ·51 | 9 ·080 | 3 13 31 ·8 | 58 ·34 | 1 4 ·40 | 5 0 ·73 |
| Sat. | 30 | 0 33 28 ·44 | 9 ·083 | 3 36 52 ·0 | 58 ·17 | 1 4 ·40 | 4 42 ·17 |
| *Sun.* | 31 | 0 37 6 ·43 | 9 ·087 | 4 0 8 ·2 | 57 ·99 | 1 4 ·41 | 4 23 ·66 |
| Mon. | 32 | 0 40 44 ·51 | | N. 4 23 19 ·9 | | 1 4 ·42 | 4 5 ·23 |

* *Mean* Time of the Semidiameter passing may be found by subtracting 0s·18

## AT MEAN NOON.

| | Day of the Month. | THE SUN'S Apparent Right Ascension. | THE SUN'S Apparent Declination. | THE SUN'S Semidiam.* | Equation of Time, *to be subtracted from Mean Time.* | Sidereal Time. |
|---|---|---|---|---|---|---|
| | | h m s | ° ′ ″ | ′ ″ | m s | h m s |
| d. | 1 | 22 47 6·87 | S. 7 43 44·5 | 16 9·2 | 12 41·42 | 22 34 25·45 |
| . | 2 | 22 50 51·33 | 7 20 56·9 | 16 8·9 | 12 29·33 | 22 38 22·00 |
| n. | 3 | 22 54 35·29 | 6 58 3·0 | 16 8·6 | 12 16·74 | 22 42 18·55 |
| n. | 4 | 22 58 18·78 | 6 35 3·1 | 16 8·4 | 12 3·68 | 22 46 15·10 |
| es. | 5 | 23 2 1·83 | 6 11 57·7 | 16 8·1 | 11 50·18 | 22 50 11·65 |
| d. | 6 | 23 5 44·44 | 5 48 47·0 | 16 7·9 | 11 36·24 | 22 54 8·20 |
| ur. | 7 | 23 9 26·66 | 5 25 31·5 | 16 7·6 | 11 21·90 | 22 58 4·76 |
| d. | 8 | 23 13 8·50 | 5 2 11·5 | 16 7·4 | 11 7·18 | 23 2 1·32 |
| . | 9 | 23 16 49·98 | 4 38 47·3 | 16 7·2 | 10 52·10 | 23 5 57·88 |
| n. | 10 | 23 20 31·09 | 4 15 19·5 | 16 6·9 | 10 36·65 | 23 9 54·44 |
| n. | 11 | 23 24 11·88 | 3 51 48·5 | 16 6·6 | 10 20·89 | 23 13 50·99 |
| es. | 12 | 23 27 52·35 | 3 28 14·5 | 16 6·4 | 10 4·80 | 23 17 47·55 |
| d. | 13 | 23 31 32·53 | 3 4 38·1 | 16 6·1 | 9 48·43 | 23 21 44·10 |
| ur. | 14 | 23 35 12·43 | 2 40 59·5 | 16 5·8 | 9 31·77 | 23 25 40·66 |
| d. | 15 | 23 38 52·06 | 2 17 19·3 | 16 5·6 | 9 14·86 | 23 29 37·20 |
| . | 16 | 23 42 31·45 | 1 53 37·8 | 16 5·3 | 8 57·70 | 23 33 33·75 |
| n. | 17 | 23 46 10·62 | 1 29 55·3 | 16 5·0 | 8 40·32 | 23 37 30·30 |
| n. | 18 | 23 49 49·58 | 1 6 12·4 | 16 4·8 | 8 22·73 | 23 41 26·85 |
| es. | 19 | 23 53 28·34 | 0 42 29·2 | 16 4·5 | 8 4·94 | 23 45 23·40 |
| d. | 20 | 23 57 6·94 | S. 0 18 46·4 | 16 4·2 | 7 46·98 | 23 49 19·96 |
| ur. | 21 | 0 0 45·38 | N. 0 4 55·8 | 16 4·0 | 7 28·86 | 23 53 16·52 |
| id. | 22 | 0 4 23·69 | 0 28 37·0 | 16 3·7 | 7 10·61 | 23 57 13·08 |
| t. | 23 | 0 8 1·88 | 0 52 16·8 | 16 3·4 | 6 52·24 | 0 1 9·64 |
| n. | 24 | 0 11 39·98 | 1 15 54·9 | 16 3·2 | 6 33·79 | 0 5 6·19 |
| n. | 25 | 0 15 18·00 | 1 39 30·8 | 16 2·9 | 6 15·25 | 0 9 2·75 |
| es. | 26 | 0 18 55·96 | 2 3 4·3 | 16 2·6 | 5 56·66 | 0 12 59·30 |
| d. | 27 | 0 22 33·89 | 2 26 35·1 | 16 2·3 | 5 38·04 | 0 16 55·85 |
| ur. | 28 | 0 26 11·81 | 2 50 2·7 | 16 2·0 | 5 19·41 | 0 20 52·40 |
| id. | 29 | 0 29 49·75 | 3 13 26·9 | 16 1·8 | 5 0·80 | 0 24 48·95 |
| t. | 30 | 0 33 27·73 | 3 36 47·5 | 16 1·5 | 4 42·23 | 0 28 45·50 |
| n. | 31 | 0 37 5·76 | 4 0 3·9 | 16 1·2 | 4 23·71 | 0 32 42·05 |
| n. | 32 | 0 40 43·89 | N. 4 23 16·0 | 16 0·9 | 4 5·29 | 0 36 38·60 |

*Semidiameter for *Apparent* Noon may be assumed the same as that for *Mean* Noon.

## MEAN TIME.

| Day of the Month. | THE SUN'S Apparent Longitude. Noon. | THE SUN'S Apparent Latitude. Noon. | Logarithm of the Radius Vector of the Earth. Noon. | THE MOON'S Semidiameter. Noon. | THE MOON'S Semidiameter. Midnight. | THE MOON'S Horizontal Pa Noon. | THE MOON'S Horizontal Pa |
|---|---|---|---|---|---|---|---|
| | ° ′ ″ | ″ | | ′ ″ | ′ ″ | ′ ″ | |
| 1 | 340 15 30 ·7 | S. 0 ·16 | 9 ·9962546 | 14 49 ·5 | 14 47 ·5 | 54 24 ·2 | 5 |
| 2 | 341 15 37 ·7 | 0 ·30 | 9 ·9963653 | 14 45 ·8 | 14 44 ·6 | 54 10 ·8 | 5 |
| 3 | 342 15 43 ·0 | 0 ·43 | 9 ·9964776 | 14 43 ·8 | 14 43 ·4 | 54 3 ·2 | 5 |
| 4 | 343 15 46 ·6 | 0 ·55 | 9 ·9965915 | 14 43 ·5 | 14 44 ·2 | 54 2 ·3 | 5 |
| 5 | 344 15 48 ·6 | 0 ·66 | 9 ·9967067 | 14 45 ·5 | 14 47 ·4 | 54 9 ·5 | 5 |
| 6 | 345 15 48 ·9 | 0 ·74 | 9 ·9968232 | 14 49 ·9 | 14 53 ·1 | 54 25 ·7 | 5 |
| 7 | 346 15 47 ·8 | 0 ·80 | 9 ·9969407 | 14 56 ·8 | 15 1 ·3 | 54 51 ·2 | 5 |
| 8 | 347 15 45 ·1 | 0 ·82 | 9 ·9970591 | 15 6 ·5 | 15 12 ·3 | 55 26 ·5 | 5 |
| 9 | 348 15 40 ·8 | 0 ·82 | 9 ·9971783 | 15 18 ·6 | 15 25 ·4 | 56 10 ·9 | 5 |
| 10 | 349 15 34 ·7 | 0 ·78 | 9 ·9972980 | 15 32 ·7 | 15 40 ·3 | 57 2 ·9 | 5 |
| 11 | 350 15 27 ·0 | 0 ·72 | 9 ·9974183 | 15 48 ·1 | 15 55 ·9 | 57 59 ·4 | 5 |
| 12 | 351 15 17 ·5 | 0 ·63 | 9 ·9975388 | 16 3 ·6 | 16 11 ·0 | 58 56 ·2 | 5 |
| 13 | 352 15 6 ·1 | 0 ·52 | 9 ·9976594 | 16 17 ·8 | 16 23 ·9 | 59 48 ·1 | 60 |
| 14 | 353 14 52 ·9 | 0 ·40 | 9 ·9977802 | 16 29 ·2 | 16 33 ·3 | 60 30 ·0 | 60 |
| 15 | 354 14 37 ·6 | 0 ·27 | 9 ·9979010 | 16 36 ·4 | 16 38 ·3 | 60 56 ·6 | 61 |
| 16 | 355 14 20 ·3 | 0 ·14 | 9 ·9980217 | 16 38 ·8 | 16 38 ·1 | 61 5 ·3 | 61 |
| 17 | 356 14 1 ·0 | S. 0 ·02 | 9 ·9981424 | 16 36 ·1 | 16 33 ·0 | 60 55 ·6 | 60 |
| 18 | 357 13 39 ·6 | N. 0 ·09 | 9 ·9982631 | 16 28 ·9 | 16 24 ·0 | 60 29 ·1 | 60 |
| 19 | 358 13 16 ·0 | 0 ·19 | 9 ·9983837 | 16 18 ·4 | 16 12 ·2 | 59 50 ·4 | 59 |
| 20 | 359 12 50 ·3 | 0 ·26 | 9 ·9985043 | 16 5 ·7 | 15 59 ·1 | 59 4 ·0 | 58 |
| 21 | 0 12 22 ·2 | 0 ·30 | 9 ·9986250 | 15 52 ·4 | 15 45 ·8 | 58 15 ·1 | 57 |
| 22 | 1 11 51 ·9 | 0 ·31 | 9 ·9987460 | 15 39 ·3 | 15 33 ·0 | 57 26 ·9 | 57 |
| 23 | 2 11 19 ·3 | 0 ·29 | 9 ·9988671 | 15 27 ·1 | 15 21 ·6 | 56 42 ·3 | 56 |
| 24 | 3 10 44 ·3 | 0 ·24 | 9 ·9989887 | 15 16 ·4 | 15 11 ·5 | 56 2 ·8 | 55 |
| 25 | 4 10 7 ·0 | 0 ·16 | 9 ·9991108 | 15 7 ·1 | 15 3 ·1 | 55 28 ·8 | 55 |
| 26 | 5 9 27 ·3 | N. 0 ·06 | 9 ·9992335 | 14 59 ·4 | 14 56 ·0 | 55 0 ·5 | 54 |
| 27 | 6 8 45 ·4 | S. 0 ·06 | 9 ·9993568 | 14 53 ·1 | 14 50 ·5 | 54 37 ·4 | 54 |
| 28 | 7 8 1 ·2 | 0 ·19 | 9 ·9994807 | 14 48 ·2 | 14 46 ·2 | 54 19 ·3 | 54 |
| 29 | 8 7 14 ·9 | 0 ·32 | 9 ·9996051 | 14 44 ·6 | 14 43 ·4 | 54 6 ·4 | 54 |
| 30 | 9 6 26 ·6 | 0 ·45 | 9 ·9997303 | 14 42 ·5 | 14 42 ·0 | 53 58 ·6 | 53 |
| 31 | 10 5 36 ·1 | 0 ·57 | 9 ·9998560 | 14 41 ·9 | 14 42 ·1 | 53 56 ·2 | 53 |
| 32 | 11 4 43 ·7 | S. 0 ·68 | 9 ·9999823 | 14 42 ·8 | 14 43 ·8 | 53 59 ·5 | 54 |

## MEAN TIME.

### THE MOON'S

| Day of the Month. | Longitude. Noon. | Longitude. Midnight. | Latitude. Noon. | Latitude. Midnight. | Age. Noon. | Meridian Passage. |
|---|---|---|---|---|---|---|
| | ° ′ ″ | ° ′ ″ | ° ′ ″ | ° ′ ″ | d | h m |
| 1 | 172 54 43 ·9 | 178 53 50 ·4 | N.0 10 59 ·2 | S.0 22 9 ·2 | 15 ·4 | 13 21 ·1 |
| 2 | 184 51 15 ·4 | 190 47 17 ·4 | S.0 54 54 ·8 | 1 26 57 ·2 | 16 ·4 | 14 0 ·2 |
| 3 | 196 42 16 ·0 | 202 36 34 ·0 | 1 57 59 ·1 | 2 27 42 ·1 | 17 ·4 | 14 40 ·0 |
| 4 | 208 30 36 ·2 | 214 24 48 ·4 | 2 55 49 ·1 | 3 22 4 ·5 | 18 ·4 | 15 21 ·4 |
| 5 | 220 19 39 ·7 | 226 15 40 ·3 | 3 46 13 ·3 | 4 8 1 ·7 | 19 ·4 | 16 5 ·4 |
| 6 | 232 13 21 ·6 | 238 13 16 ·9 | 4 27 15 ·3 | 4 43 41 ·6 | 20 ·4 | 16 52 ·7 |
| 7 | 244 16 0 ·2 | 250 22 5 ·8 | 4 57 6 ·9 | 5 7 19 ·8 | 21 ·4 | 17 43 ·7 |
| 8 | 256 32 8 ·0 | 262 46 39 ·7 | 5 14 7 ·9 | 5 17 19 ·8 | 22 ·4 | 18 37 ·9 |
| 9 | 269 6 13 ·1 | 275 31 17 ·9 | 5 16 45 ·1 | 5 12 14 ·7 | 23 ·4 | 19 34 ·4 |
| 10 | 282 2 19 ·3 | 288 39 38 ·9 | 5 3 41 ·0 | 4 50 58 ·7 | 24 ·4 | 20 31 ·4 |
| 11 | 295 23 32 ·3 | 302 14 8 ·5 | 4 34 4 ·9 | 4 13 2 ·4 | 25 ·4 | 21 27 ·4 |
| 12 | 309 11 27 ·7 | 316 15 21 ·7 | 3 47 56 ·3 | 3 18 59 ·7 | 26 ·4 | 22 21 ·6 |
| 13 | 323 25 32 ·7 | 330 41 31 ·3 | 2 46 29 ·9 | 2 10 53 ·0 | 27 ·4 | 23 13 ·9 |
| 14 | 338 2 39 ·8 | 345 28 9 ·8 | 1 32 40 ·2 | S.0 52 31 ·3 | 28 ·4 | 0 |
| 15 | 352 57 5 ·7 | 0 28 25 ·3 | S.0 11 8 ·7 | N.0 30 38 ·4 | 29 ·4 | 0 5 ·0 |
| 16 | 8 1 1 ·2 | 15 33 45 ·8 | N.1 12 0 ·4 | 1 52 7 ·0 | 0 ·9 | 0 55 ·9 |
| 17 | 23 5 30 ·7 | 30 35 12 ·3 | 2 30 10 ·9 | 3 5 27 ·5 | 1 ·9 | 1 48 ·0 |
| 18 | 38 1 52 ·3 | 45 24 38 ·8 | 3 37 20 ·6 | 4 5 17 ·8 | 2 ·9 | 2 42 ·3 |
| 19 | 52 42 49 ·4 | 59 55 51 ·0 | 4 28 56 ·9 | 4 48 1 ·9 | 3 ·9 | 3 39 ·4 |
| 20 | 67 3 19 ·3 | 74 4 59 ·7 | 5 2 23 ·4 | 5 11 59 ·8 | 4 ·9 | 4 39 ·0 |
| 21 | 81 0 45 ·7 | 87 50 37 ·3 | 5 16 54 ·1 | 5 17 13 ·5 | 5 ·9 | 5 39 ·7 |
| 22 | 94 34 41 ·3 | 101 13 10 ·5 | 5 13 9 ·3 | 5 4 56 ·0 | 6 ·9 | 6 39 ·2 |
| 23 | 107 46 20 ·4 | 114 14 30 ·1 | 4 52 49 ·2 | 4 37 7 ·6 | 7 ·9 | 7 35 ·5 |
| 24 | 120 38 0 ·9 | 126 57 14 ·8 | 4 18 9 ·3 | 3 56 14 ·1 | 8 ·9 | 8 27 ·6 |
| 25 | 133 12 35 ·5 | 139 24 25 ·4 | 3 31 42 ·4 | 3 4 54 ·7 | 9 ·9 | 9 15 ·3 |
| 26 | 145 33 7 ·1 | 151 39 1 ·2 | 2 36 11 ·7 | 2 5 55 ·0 | 10 ·9 | 9 59 ·3 |
| 27 | 157 42 29 ·2 | 163 43 50 ·7 | 1 34 25 ·1 | N.1 2 3 ·2 | 11 ·9 | 10 40 ·6 |
| 28 | 169 43 23 ·6 | 175 41 25 ·6 | N.0 29 10 ·0 | S.0 3 52 ·8 | 12 ·9 | 11 20 ·2 |
| 29 | 181 38 13 ·1 | 187 34 2 ·2 | S.0 36 45 ·4 | 1 9 7 ·8 | 13 ·9 | 11 59 ·2 |
| 30 | 193 29 8 ·4 | 199 23 47 ·2 | 1 40 40 ·0 | 2 11 3 ·8 | 14 ·9 | 12 38 ·6 |
| 31 | 205 18 14 ·1 | 211 12 45 ·5 | 2 40 1 ·2 | 3 7 14 ·4 | 15 ·9 | 13 19 ·3 |
| 32 | 217 7 37 ·4 | 223 3 7 ·9 | S.3 32 27 ·8 | S.3 55 25 ·8 | 16 ·9 | 14 2 ·4 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *FRIDAY* 1. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 11 34 15 ·72 | N.2 59 3 ·0 | 144 ·15 |
| 1 | 11 36 1 ·66 | 2 44 38 ·1 | 144 ·18 |
| 2 | 11 37 47 ·51 | 2 30 13 ·0 | 144 ·22 |
| 3 | 11 39 33 ·27 | 2 15 47 ·7 | 144 ·23 |
| 4 | 11 41 18 ·96 | 2 1 22 ·3 | 144 ·23 |
| 5 | 11 43 4 ·56 | 1 46 56 ·9 | 144 ·25 |
| 6 | 11 44 50 ·09 | 1 32 31 ·4 | 144 ·23 |
| 7 | 11 46 35 ·55 | 1 18 6 ·0 | 144 ·23 |
| 8 | 11 48 20 ·95 | 1 3 40 ·6 | 144 ·20 |
| 9 | 11 50 6 ·28 | 0 49 15 ·4 | 144 ·17 |
| 10 | 11 51 51 ·56 | 0 34 50 ·4 | 144 ·13 |
| 11 | 11 53 36 ·79 | 0 20 25 ·6 | 144 ·08 |
| 12 | 11 55 21 ·96 | N.0 6 1 ·1 | 144 ·03 |
| 13 | 11 57 7 ·09 | S.0 8 23 ·1 | 143 ·98 |
| 14 | 11 58 52 ·18 | 0 22 47 ·0 | 143 ·90 |
| 15 | 12 0 37 ·24 | 0 37 10 ·4 | 143 ·83 |
| 16 | 12 2 22 ·26 | 0 51 33 ·4 | 143 ·73 |
| 17 | 12 4 7 ·26 | 1 5 55 ·8 | 143 ·65 |
| 18 | 12 5 52 ·23 | 1 20 17 ·7 | 143 ·55 |
| 19 | 12 7 37 ·19 | 1 34 39 ·0 | 143 ·45 |
| 20 | 12 9 22 ·12 | 1 48 59 ·7 | 143 ·33 |
| 21 | 12 11 7 ·05 | 2 3 19 ·7 | 143 ·20 |
| 22 | 12 12 51 ·97 | 2 17 38 ·9 | 143 ·07 |
| 23 | 12 14 36 ·89 | S.2 31 57 ·3 | 142 ·93 |
| | *SATURDAY* 2. | | |
| 0 | 12 16 21 ·81 | S.2 46 14 ·9 | 142 ·78 |
| 1 | 12 18 6 ·74 | 3 0 31 ·6 | 142 ·63 |
| 2 | 12 19 51 ·67 | 3 14 47 ·4 | 142 ·47 |
| 3 | 12 21 36 ·62 | 3 29 2 ·2 | 142 ·30 |
| 4 | 12 23 21 ·59 | 3 43 16 ·0 | 142 ·12 |
| 5 | 12 25 6 ·58 | 3 57 28 ·7 | 141 ·95 |
| 6 | 12 26 51 ·60 | 4 11 40 ·4 | 141 ·75 |
| 7 | 12 28 36 ·64 | 4 25 50 ·9 | 141 ·55 |
| 8 | 12 30 21 ·72 | 4 40 0 ·2 | 141 ·35 |
| 9 | 12 32 6 ·84 | 4 54 8 ·3 | 141 ·13 |
| 10 | 12 33 52 ·00 | 5 8 15 ·1 | 140 ·92 |
| 11 | 12 35 37 ·20 | 5 22 20 ·6 | 140 ·68 |
| 12 | 12 37 22 ·46 | 5 36 24 ·7 | 140 ·45 |
| 13 | 12 39 7 ·77 | 5 50 27 ·4 | 140 ·22 |
| 14 | 12 40 53 ·13 | 6 4 28 ·7 | 139 ·97 |
| 15 | 12 42 38 ·56 | 6 18 28 ·5 | 139 ·72 |
| 16 | 12 44 24 ·05 | 6 32 26 ·8 | 139 ·43 |
| 17 | 12 46 9 ·62 | 6 46 23 ·4 | 139 ·18 |
| 18 | 12 47 55 ·25 | 7 0 18 ·5 | 138 ·88 |
| 19 | 12 49 40 ·97 | 7 14 11 ·8 | 138 ·62 |
| 20 | 12 51 26 ·77 | 7 28 3 ·5 | 138 ·32 |
| 21 | 12 53 12 ·65 | 7 41 53 ·4 | 138 ·02 |
| 22 | 12 54 58 ·62 | 7 55 41 ·5 | 137 ·70 |
| 23 | 12 56 44 ·69 | 8 9 27 ·7 | 137 ·38 |
| 24 | 12 58 30 ·86 | S.8 23 12 ·0 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SUNDAY* 3. | | |
| | h m s | ° ′ ″ | |
| 0 | 12 58 30 ·86 | S. 8 23 12 ·0 | 13 |
| 1 | 13 0 17 ·13 | 8 36 54 ·4 | 13 |
| 2 | 13 2 3 ·51 | 8 50 34 ·8 | 13 |
| 3 | 13 3 50 ·00 | 9 4 13 ·1 | 13 |
| 4 | 13 5 36 ·60 | 9 17 49 ·4 | 13 |
| 5 | 13 7 23 ·32 | 9 31 23 ·6 | 13 |
| 6 | 13 9 10 ·16 | 9 44 55 ·5 | 13 |
| 7 | 13 10 57 ·13 | 9 58 25 ·3 | 13 |
| 8 | 13 12 44 ·23 | 10 11 52 ·8 | 13 |
| 9 | 13 14 31 ·47 | 10 25 18 ·0 | 13 |
| 10 | 13 16 18 ·84 | 10 38 40 ·9 | 13 |
| 11 | 13 18 6 ·36 | 10 52 1 ·4 | 13 |
| 12 | 13 19 54 ·02 | 11 5 19 ·4 | 13 |
| 13 | 13 21 41 ·83 | 11 18 34 ·9 | 13 |
| 14 | 13 23 29 ·80 | 11 31 48 ·0 | 13 |
| 15 | 13 25 17 ·92 | 11 44 58 ·4 | 13 |
| 16 | 13 27 6 ·20 | 11 58 6 ·2 | 13 |
| 17 | 13 28 54 ·65 | 12 11 11 ·3 | 13 |
| 18 | 13 30 43 ·27 | 12 24 13 ·8 | 13 |
| 19 | 13 32 32 ·06 | 12 37 13 ·4 | 13 |
| 20 | 13 34 21 ·02 | 12 50 10 ·3 | 13 |
| 21 | 13 36 10 ·17 | 13 3 4 ·3 | 13 |
| 22 | 13 37 59 ·50 | 13 15 55 ·4 | 13 |
| 23 | 13 39 49 ·02 | S.13 28 43 ·5 | 13 |
| | *MONDAY* 4. | | |
| 0 | 13 41 38 ·73 | S.13 41 28 ·7 | 13 |
| 1 | 13 43 28 ·63 | 13 54 10 ·8 | 13 |
| 2 | 13 45 18 ·73 | 14 6 49 ·8 | 13 |
| 3 | 13 47 9 ·03 | 14 19 25 ·7 | 13 |
| 4 | 13 48 59 ·54 | 14 31 58 ·4 | 13 |
| 5 | 13 50 50 ·26 | 14 44 27 ·9 | 13 |
| 6 | 13 52 41 ·19 | 14 56 54 ·1 | 13 |
| 7 | 13 54 32 ·34 | 15 9 16 ·9 | 13 |
| 8 | 13 56 23 ·70 | 15 21 36 ·4 | 13 |
| 9 | 13 58 15 ·30 | 15 33 52 ·4 | 13 |
| 10 | 14 0 7 ·12 | 15 46 5 ·0 | 13 |
| 11 | 14 1 59 ·17 | 15 58 14 ·0 | 13 |
| 12 | 14 3 51 ·45 | 16 10 19 ·5 | 13 |
| 13 | 14 5 43 ·97 | 16 22 21 ·3 | 13 |
| 14 | 14 7 36 ·74 | 16 34 19 ·5 | 13 |
| 15 | 14 9 29 ·74 | 16 46 13 ·9 | 13 |
| 16 | 14 11 23 ·00 | 16 58 4 ·6 | 13 |
| 17 | 14 13 16 ·51 | 17 9 51 ·4 | 13 |
| 18 | 14 15 10 ·27 | 17 21 34 ·4 | 13 |
| 19 | 14 17 4 ·29 | 17 33 13 ·4 | 13 |
| 20 | 14 18 58 ·57 | 17 44 48 ·5 | 13 |
| 21 | 14 20 53 ·11 | 17 56 19 ·5 | 13 |
| 22 | 14 22 47 ·92 | 18 7 46 ·5 | 13 |
| 23 | 14 24 43 ·01 | 18 19 9 ·3 | 13 |
| 24 | 14 26 38 ·36 | S.18 30 27 ·9 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| ur. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 5. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 14 26 38 ·36 | S. 18 30 27 ·9 | 112 ·40 |
| 1 | 14 28 33 ·99 | 18 41 42 ·3 | 111 ·68 |
| 2 | 14 30 29 ·90 | 18 52 52 ·4 | 110 ·95 |
| 3 | 14 32 26 ·09 | 19 3 58 ·1 | 110 ·23 |
| 4 | 14 34 22 ·57 | 19 14 59 ·5 | 109 ·48 |
| 5 | 14 36 19 ·33 | 19 25 56 ·4 | 108 ·73 |
| 6 | 14 38 16 ·38 | 19 36 48 ·8 | 107 ·97 |
| 7 | 14 40 13 ·73 | 19 47 36 ·6 | 107 ·18 |
| 8 | 14 42 11 ·38 | 19 58 19 ·7 | 106 ·42 |
| 9 | 14 44 9 ·32 | 20 8 58 ·2 | 105 ·63 |
| 0 | 14 46 7 ·57 | 20 19 32 ·0 | 104 ·83 |
| 1 | 14 48 6 ·11 | 20 30 1 ·0 | 104 ·02 |
| 2 | 14 50 4 ·97 | 20 40 25 ·1 | 103 ·20 |
| 3 | 14 52 4 ·13 | 20 50 44 ·3 | 102 ·38 |
| 4 | 14 54 3 ·61 | 21 0 58 ·6 | 101 ·53 |
| 5 | 14 56 3 ·39 | 21 11 7 ·8 | 100 ·68 |
| 6 | 14 58 3 ·50 | 21 21 11 ·9 | 99 ·85 |
| 7 | 15 0 3 ·92 | 21 31 11 ·0 | 98 ·97 |
| 8 | 15 2 4 ·66 | 21 41 4 ·8 | 98 ·10 |
| 9 | 15 4 5 ·72 | 21 50 53 ·4 | 97 ·22 |
| 0 | 15 6 7 ·11 | 22 0 36 ·7 | 96 ·32 |
| 1 | 15 8 8 ·82 | 22 10 14 ·6 | 95 ·43 |
| 2 | 15 10 10 ·86 | 22 19 47 ·2 | 94 ·50 |
| 3 | 15 12 13 ·23 | S. 22 29 14 ·2 | 93 ·58 |
| | *WEDNESDAY* 6. | | |
| 0 | 15 14 15 ·93 | S. 22 38 35 ·7 | 92 ·65 |
| 1 | 15 16 18 ·96 | 22 47 51 ·6 | 91 ·72 |
| 2 | 15 18 22 ·33 | 22 57 1 ·9 | 90 ·77 |
| 3 | 15 20 26 ·04 | 23 6 6 ·5 | 89 ·80 |
| 4 | 15 22 30 ·08 | 23 15 5 ·3 | 88 ·82 |
| 5 | 15 24 34 ·46 | 23 23 58 ·2 | 87 ·85 |
| 6 | 15 26 39 ·18 | 23 32 45 ·3 | 86 ·85 |
| 7 | 15 28 44 ·25 | 23 41 26 ·4 | 85 ·85 |
| 8 | 15 30 49 ·65 | 23 50 1 ·5 | 84 ·83 |
| 9 | 15 32 55 ·40 | 23 58 30 ·5 | 83 ·82 |
| 0 | 15 35 1 ·49 | 24 6 53 ·4 | 82 ·77 |
| 1 | 15 37 7 ·93 | 24 15 10 ·0 | 81 ·73 |
| 2 | 15 39 14 ·71 | 24 23 20 ·4 | 80 ·67 |
| 3 | 15 41 21 ·84 | 24 31 24 ·4 | 79 ·62 |
| 4 | 15 43 29 ·31 | 24 39 22 ·1 | 78 ·53 |
| 5 | 15 45 37 ·14 | 24 47 13 ·3 | 77 ·45 |
| 6 | 15 47 45 ·31 | 24 54 58 ·0 | 76 ·35 |
| 7 | 15 49 53 ·83 | 25 2 36 ·1 | 75 ·25 |
| 8 | 15 52 2 ·69 | 25 10 7 ·6 | 74 ·12 |
| 9 | 15 54 11 ·91 | 25 17 32 ·3 | 73 ·02 |
| 0 | 15 56 21 ·47 | 25 24 50 ·4 | 71 ·87 |
| 1 | 15 58 31 ·38 | 25 32 1 ·6 | 70 ·72 |
| 2 | 16 0 41 ·63 | 25 39 5 ·9 | 69 ·55 |
| 3 | 16 2 52 ·24 | 25 46 3 ·2 | 68 ·40 |
| 4 | 16 5 3 ·19 | S. 25 52 53 ·6 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *THURSDAY* 7. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 16 5 3 ·19 | S. 25 52 53 ·6 | 67 ·22 |
| 1 | 16 7 14 ·49 | 25 59 36 ·9 | 66 ·03 |
| 2 | 16 9 26 ·12 | 26 6 13 ·1 | 64 ·83 |
| 3 | 16 11 38 ·11 | 26 12 42 ·1 | 63 ·62 |
| 4 | 16 13 50 ·43 | 26 19 3 ·8 | 62 ·42 |
| 5 | 16 16 3 ·10 | 26 25 18 ·3 | 61 ·17 |
| 6 | 16 18 16 ·11 | 26 31 25 ·3 | 59 ·93 |
| 7 | 16 20 29 ·46 | 26 37 24 ·9 | 58 ·67 |
| 8 | 16 22 43 ·14 | 26 43 17 ·0 | 57 ·42 |
| 9 | 16 24 57 ·16 | 26 49 1 ·5 | 56 ·15 |
| 10 | 16 27 11 ·52 | 26 54 38 ·4 | 54 ·87 |
| 11 | 16 29 26 ·21 | 27 0 7 ·6 | 53 ·58 |
| 12 | 16 31 41 ·23 | 27 5 29 ·1 | 52 ·28 |
| 13 | 16 33 56 ·58 | 27 10 42 ·8 | 50 ·95 |
| 14 | 16 36 12 ·26 | 27 15 48 ·5 | 49 ·65 |
| 15 | 16 38 28 ·26 | 27 20 46 ·4 | 48 ·30 |
| 16 | 16 40 44 ·58 | 27 25 36 ·2 | 46 ·97 |
| 17 | 16 43 1 ·22 | 27 30 18 ·0 | 45 ·62 |
| 18 | 16 45 18 ·18 | 27 34 51 ·7 | 44 ·25 |
| 19 | 16 47 35 ·45 | 27 39 17 ·2 | 42 ·88 |
| 20 | 16 49 53 ·03 | 27 43 34 ·5 | 41 ·50 |
| 21 | 16 52 10 ·92 | 27 47 43 ·5 | 40 ·12 |
| 22 | 16 54 29 ·11 | 27 51 44 ·2 | 38 ·72 |
| 23 | 16 56 47 ·60 | S. 27 55 36 ·5 | 37 ·30 |
| | *FRIDAY* 8. | | |
| 0 | 16 59 6 ·39 | S. 27 59 20 ·3 | 35 ·88 |
| 1 | 17 1 25 ·48 | 28 2 55 ·6 | 34 ·47 |
| 2 | 17 3 44 ·85 | 28 6 22 ·4 | 33 ·02 |
| 3 | 17 6 4 ·51 | 28 9 40 ·5 | 31 ·57 |
| 4 | 17 8 24 ·46 | 28 12 49 ·9 | 30 ·12 |
| 5 | 17 10 44 ·68 | 28 15 50 ·6 | 28 ·67 |
| 6 | 17 13 5 ·18 | 28 18 42 ·6 | 27 ·18 |
| 7 | 17 15 25 ·95 | 28 21 25 ·7 | 25 ·70 |
| 8 | 17 17 46 ·98 | 28 23 59 ·9 | 24 ·22 |
| 9 | 17 20 8 ·27 | 28 26 25 ·2 | 22 ·72 |
| 10 | 17 22 29 ·82 | 28 28 41 ·5 | 21 ·20 |
| 11 | 17 24 51 ·62 | 28 30 48 ·7 | 19 ·70 |
| 12 | 17 27 13 ·67 | 28 32 46 ·9 | 18 ·17 |
| 13 | 17 29 35 ·96 | 28 34 35 ·9 | 16 ·65 |
| 14 | 17 31 58 ·49 | 28 36 15 ·8 | 15 ·10 |
| 15 | 17 34 21 ·26 | 28 37 46 ·4 | 13 ·57 |
| 16 | 17 36 44 ·25 | 28 39 7 ·8 | 12 ·02 |
| 17 | 17 39 7 ·46 | 28 40 19 ·9 | 10 ·45 |
| 18 | 17 41 30 ·89 | 28 41 22 ·6 | 8 ·88 |
| 19 | 17 43 54 ·52 | 28 42 15 ·9 | 7 ·32 |
| 20 | 17 46 18 ·37 | 28 42 59 ·8 | 5 ·73 |
| 21 | 17 48 42 ·41 | 28 43 34 ·2 | 4 ·13 |
| 22 | 17 51 6 ·65 | 28 43 59 ·0 | 2 ·57 |
| 23 | 17 53 31 ·08 | 28 44 14 ·4 | 0 ·95 |
| 24 | 17 55 55 ·69 | S. 28 44 20 ·1 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SATURDAY* 9. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 17 55 55 ·69 | S. 28 44 20 ·1 | 0 ·65 |
| 1 | 17 58 20 ·48 | 28 44 16 ·2 | 2 ·25 |
| 2 | 18 0 45 ·44 | 28 44 2 ·7 | 3 ·88 |
| 3 | 18 3 10 ·56 | 28 43 39 ·4 | 5 ·48 |
| 4 | 18 5 35 ·84 | 28 43 6 ·5 | 7 ·13 |
| 5 | 18 8 1 ·28 | 28 42 23 ·7 | 8 ·75 |
| 6 | 18 10 26 ·86 | 28 41 31 ·2 | 10 ·38 |
| 7 | 18 12 52 ·58 | 28 40 28 ·9 | 12 ·03 |
| 8 | 18 15 18 ·43 | 28 39 16 ·7 | 13 ·68 |
| 9 | 18 17 44 ·41 | 28 37 54 ·6 | 15 ·32 |
| 10 | 18 20 10 ·51 | 28 36 22 ·7 | 16 ·98 |
| 11 | 18 22 36 ·73 | 28 34 40 ·8 | 18 ·63 |
| 12 | 18 25 3 ·05 | 28 32 49 ·0 | 20 ·30 |
| 13 | 18 27 29 ·47 | 28 30 47 ·2 | 21 ·97 |
| 14 | 18 29 55 ·99 | 28 28 35 ·4 | 23 ·63 |
| 15 | 18 32 22 ·60 | 28 26 13 ·6 | 25 ·30 |
| 16 | 18 34 49 ·28 | 28 23 41 ·8 | 26 ·97 |
| 17 | 18 37 16 ·04 | 28 21 0 ·0 | 28 ·65 |
| 18 | 18 39 42 ·87 | 28 18 8 ·1 | 30 ·32 |
| 19 | 18 42 9 ·77 | 28 15 6 ·2 | 32 ·02 |
| 20 | 18 44 36 ·71 | 28 11 54 ·1 | 33 ·68 |
| 21 | 18 47 3 ·71 | 28 8 32 ·0 | 35 ·35 |
| 22 | 18 49 30 ·75 | 28 4 59 ·9 | 37 ·05 |
| 23 | 18 51 57 ·82 | S. 28 1 17 ·6 | 38 ·73 |
| | *SUNDAY* 10. | | |
| 0 | 18 54 24 ·93 | S. 27 57 25 ·2 | 40 ·42 |
| 1 | 18 56 52 ·06 | 27 53 22 ·7 | 42 ·10 |
| 2 | 18 59 19 ·21 | 27 49 10 ·1 | 43 ·77 |
| 3 | 19 1 46 ·36 | 27 44 47 ·5 | 45 ·47 |
| 4 | 19 4 13 ·52 | 27 40 14 ·7 | 47 ·15 |
| 5 | 19 6 40 ·68 | 27 35 31 ·8 | 48 ·83 |
| 6 | 19 9 7 ·83 | 27 30 38 ·8 | 50 ·52 |
| 7 | 19 11 34 ·97 | 27 25 35 ·7 | 52 ·20 |
| 8 | 19 14 2 ·09 | 27 20 22 ·5 | 53 ·88 |
| 9 | 19 16 29 ·17 | 27 14 59 ·2 | 55 ·55 |
| 10 | 19 18 56 ·23 | 27 9 25 ·9 | 57 ·23 |
| 11 | 19 21 23 ·25 | 27 3 42 ·5 | 58 ·92 |
| 12 | 19 23 50 ·22 | 26 57 49 ·0 | 60 ·58 |
| 13 | 19 26 17 ·14 | 26 51 45 ·5 | 62 ·25 |
| 14 | 19 28 44 ·01 | 26 45 32 ·0 | 63 ·93 |
| 15 | 19 31 10 ·82 | 26 39 8 ·4 | 65 ·58 |
| 16 | 19 33 37 ·55 | 26 32 34 ·9 | 67 ·25 |
| 17 | 19 36 4 ·22 | 26 25 51 ·4 | 68 ·90 |
| 18 | 19 38 30 ·81 | 26 18 58 ·0 | 70 ·55 |
| 19 | 19 40 57 ·32 | 26 11 54 ·7 | 72 ·20 |
| 20 | 19 43 23 ·74 | 26 4 41 ·5 | 73 ·85 |
| 21 | 19 45 50 ·06 | 25 57 18 ·4 | 75 ·48 |
| 22 | 19 48 16 ·29 | 25 49 45 ·5 | 77 ·12 |
| 23 | 19 50 42 ·42 | 25 42 2 ·8 | 78 ·75 |
| 24 | 19 53 8 ·44 | S. 25 34 10 ·3 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *MONDAY* 11. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 19 53 8 ·44 | S. 25 34 10 ·3 | 80 ·37 |
| 1 | 19 55 34 ·35 | 25 26 8 ·1 | 81 ·98 |
| 2 | 19 58 0 ·14 | 25 17 56 ·2 | 83 ·60 |
| 3 | 20 0 25 ·81 | 25 9 34 ·6 | 85 ·20 |
| 4 | 20 2 51 ·36 | 25 1 3 ·4 | 86 ·80 |
| 5 | 20 5 16 ·78 | 24 52 22 ·6 | 88 ·38 |
| 6 | 20 7 42 ·07 | 24 43 32 ·3 | 89 ·98 |
| 7 | 20 10 7 ·22 | 24 34 32 ·4 | 91 ·57 |
| 8 | 20 12 32 ·23 | 24 25 23 ·0 | 93 ·12 |
| 9 | 20 14 57 ·09 | 24 16 4 ·3 | 94 ·70 |
| 10 | 20 17 21 ·81 | 24 6 36 ·1 | 96 ·25 |
| 11 | 20 19 46 ·38 | 23 56 58 ·6 | 97 ·80 |
| 12 | 20 22 10 ·79 | 23 47 11 ·8 | 99 ·35 |
| 13 | 20 24 35 ·04 | 23 37 15 ·7 | 100 ·87 |
| 14 | 20 26 59 ·14 | 23 27 10 ·5 | 102 ·40 |
| 15 | 20 29 23 ·07 | 23 16 56 ·1 | 103 ·90 |
| 16 | 20 31 46 ·83 | 23 6 32 ·7 | 105 ·42 |
| 17 | 20 34 10 ·43 | 22 56 0 ·2 | 106 ·92 |
| 18 | 20 36 33 ·85 | 22 45 18 ·7 | 108 ·40 |
| 19 | 20 38 57 ·10 | 22 34 28 ·3 | 109 ·87 |
| 20 | 20 41 20 ·18 | 22 23 29 ·1 | 111 ·33 |
| 21 | 20 43 43 ·08 | 22 12 21 ·1 | 112 ·80 |
| 22 | 20 46 5 ·80 | 22 1 4 ·3 | 114 ·23 |
| 23 | 20 48 28 ·33 | S. 21 49 38 ·9 | 115 ·67 |
| | *TUESDAY* 12. | | |
| 0 | 20 50 50 ·69 | S. 21 38 4 ·9 | 117 ·08 |
| 1 | 20 53 12 ·86 | 21 26 22 ·4 | 118 ·50 |
| 2 | 20 55 34 ·85 | 21 14 31 ·4 | 119 ·90 |
| 3 | 20 57 56 ·65 | 21 2 32 ·0 | 121 ·30 |
| 4 | 21 0 18 ·26 | 20 50 24 ·2 | 122 ·67 |
| 5 | 21 2 39 ·69 | 20 38 8 ·2 | 124 ·03 |
| 6 | 21 5 0 ·93 | 20 25 44 ·0 | 125 ·38 |
| 7 | 21 7 21 ·98 | 20 13 11 ·7 | 126 ·73 |
| 8 | 21 9 42 ·83 | 20 0 31 ·3 | 128 ·07 |
| 9 | 21 12 3 ·50 | 19 47 42 ·9 | 129 ·37 |
| 10 | 21 14 23 ·98 | 19 34 46 ·7 | 130 ·68 |
| 11 | 21 16 44 ·26 | 19 21 42 ·6 | 131 ·98 |
| 12 | 21 19 4 ·36 | 19 8 30 ·7 | 133 ·27 |
| 13 | 21 21 24 ·26 | 18 55 11 ·1 | 134 ·52 |
| 14 | 21 23 43 ·98 | 18 41 44 ·0 | 135 ·78 |
| 15 | 21 26 3 ·50 | 18 28 9 ·3 | 137 ·02 |
| 16 | 21 28 22 ·83 | 18 14 27 ·2 | 138 ·25 |
| 17 | 21 30 41 ·98 | 18 0 37 ·7 | 139 ·45 |
| 18 | 21 33 0 ·93 | 17 46 41 ·0 | 140 ·65 |
| 19 | 21 35 19 ·70 | 17 32 37 ·1 | 141 ·82 |
| 20 | 21 37 38 ·28 | 17 18 26 ·2 | 143 ·00 |
| 21 | 21 39 56 ·68 | 17 4 8 ·2 | 144 ·15 |
| 22 | 21 42 14 ·89 | 16 49 43 ·3 | 145 ·28 |
| 23 | 21 44 32 ·92 | 16 35 11 ·6 | 146 ·42 |
| 24 | 21 46 50 ·76 | S. 16 20 33 ·1 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *WEDNESDAY* 13. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 21 46 50 ·76 | S. 16 20 33 ·1 | 147 ·52 |
| 1 | 21 49 8 ·42 | 16 5 48 ·0 | 148 ·60 |
| 2 | 21 51 25 ·91 | 15 50 56 ·4 | 149 ·68 |
| 3 | 21 53 43 ·21 | 15 35 58 ·3 | 150 ·73 |
| 4 | 21 56 0 ·35 | 15 20 53 ·9 | 151 ·80 |
| 5 | 21 58 17 ·31 | 15 5 43 ·1 | 152 ·82 |
| 6 | 22 0 34 ·10 | 14 50 26 ·2 | 153 ·83 |
| 7 | 22 2 50 ·72 | 14 35 3 ·2 | 154 ·83 |
| 8 | 22 5 7 ·17 | 14 19 34 ·2 | 155 ·80 |
| 9 | 22 7 23 ·46 | 14 3 59 ·4 | 156 ·78 |
| 10 | 22 9 39 ·58 | 13 48 18 ·7 | 157 ·73 |
| 11 | 22 11 55 ·55 | 13 32 32 ·3 | 158 ·67 |
| 12 | 22 14 11 ·36 | 13 16 40 ·3 | 159 ·58 |
| 13 | 22 16 27 ·02 | 13 0 42 ·8 | 160 ·48 |
| 14 | 22 18 42 ·52 | 12 44 39 ·9 | 161 ·38 |
| 15 | 22 20 57 ·88 | 12 28 31 ·6 | 162 ·23 |
| 16 | 22 23 13 ·09 | 12 12 18 ·2 | 163 ·08 |
| 17 | 22 25 28 ·17 | 11 55 59 ·7 | 163 ·92 |
| 18 | 22 27 43 ·10 | 11 39 36 ·2 | 164 ·72 |
| 19 | 22 29 57 ·89 | 11 23 7 ·9 | 165 ·53 |
| 20 | 22 32 12 ·56 | 11 6 34 ·7 | 166 ·30 |
| 21 | 22 34 27 ·09 | 10 49 56 ·9 | 167 ·05 |
| 22 | 22 36 41 ·50 | 10 33 14 ·6 | 167 ·80 |
| 23 | 22 38 55 ·79 | S. 10 16 27 ·8 | 168 ·53 |
| | *THURSDAY* 14. | | |
| 0 | 22 41 9 ·96 | S. 9 59 36 ·6 | 169 ·22 |
| 1 | 22 43 24 ·01 | 9 42 41 ·3 | 169 ·92 |
| 2 | 22 45 37 ·96 | 9 25 41 ·8 | 170 ·58 |
| 3 | 22 47 51 ·79 | 9 8 38 ·3 | 171 ·23 |
| 4 | 22 50 5 ·52 | 8 51 30 ·9 | 171 ·87 |
| 5 | 22 52 19 ·15 | 8 34 19 ·7 | 172 ·48 |
| 6 | 22 54 32 ·69 | 8 17 4 ·8 | 173 ·07 |
| 7 | 22 56 46 ·13 | 7 59 46 ·4 | 173 ·65 |
| 8 | 22 58 59 ·49 | 7 42 24 ·5 | 174 ·22 |
| 9 | 23 1 12 ·76 | 7 24 59 ·2 | 174 ·75 |
| 10 | 23 3 25 ·95 | 7 7 30 ·7 | 175 ·28 |
| 11 | 23 5 39 ·07 | 6 49 59 ·0 | 175 ·77 |
| 12 | 23 7 52 ·11 | 6 32 24 ·4 | 176 ·27 |
| 13 | 23 10 5 ·09 | 6 14 46 ·8 | 176 ·72 |
| 14 | 23 12 18 ·00 | 5 57 6 ·5 | 177 ·18 |
| 15 | 23 14 30 ·85 | 5 39 23 ·4 | 177 ·60 |
| 16 | 23 16 43 ·65 | 5 21 37 ·8 | 178 ·00 |
| 17 | 23 18 56 ·41 | 5 3 49 ·8 | 178 ·38 |
| 18 | 23 21 9 ·11 | 4 45 59 ·5 | 178 ·75 |
| 19 | 23 23 21 ·78 | 4 28 7 ·0 | 179 ·10 |
| 20 | 23 25 34 ·41 | 4 10 12 ·4 | 179 ·43 |
| 21 | 23 27 47 ·01 | 3 52 15 ·8 | 179 ·73 |
| | 23 29 59 ·58 | 3 34 17 ·4 | 180 ·02 |
| | 32 12 ·13 | 3 16 17 ·3 | 180 ·28 |
| | ·67 | S. 2 58 15 ·6 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *FRIDAY* 15. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 23 34 24 ·67 | S. 2 58 15 ·6 | 180 ·53 |
| 1 | 23 36 37 ·19 | 2 40 12 ·4 | 180 ·75 |
| 2 | 23 38 49 ·71 | 2 22 7 ·9 | 180 ·97 |
| 3 | 23 41 2 ·22 | 2 4 2 ·1 | 181 ·15 |
| 4 | 23 43 14 ·74 | 1 45 55 ·2 | 181 ·30 |
| 5 | 23 45 27 ·26 | 1 27 47 ·4 | 181 ·47 |
| 6 | 23 47 39 ·79 | 1 9 38 ·6 | 181 ·58 |
| 7 | 23 49 52 ·34 | 0 51 29 ·1 | 181 ·68 |
| 8 | 23 52 4 ·91 | 0 33 19 ·0 | 181 ·78 |
| 9 | 23 54 17 ·51 | S. 0 15 8 ·3 | 181 ·83 |
| 10 | 23 56 30 ·13 | N. 0 3 2 ·7 | 181 ·88 |
| 11 | 23 58 42 ·79 | 0 21 14 ·0 | 181 ·90 |
| 12 | 0 0 55 ·49 | 0 39 25 ·4 | 181 ·92 |
| 13 | 0 3 8 ·23 | 0 57 36 ·9 | 181 ·88 |
| 14 | 0 5 21 ·03 | 1 15 48 ·2 | 181 ·85 |
| 15 | 0 7 33 ·88 | 1 33 59 ·3 | 181 ·80 |
| 16 | 0 9 46 ·78 | 1 52 10 ·1 | 181 ·72 |
| 17 | 0 11 59 ·76 | 2 10 20 ·4 | 181 ·62 |
| 18 | 0 14 12 ·80 | 2 28 30 ·1 | 181 ·48 |
| 19 | 0 16 25 ·91 | 2 46 39 ·0 | 181 ·35 |
| 20 | 0 18 39 ·11 | 3 4 47 ·1 | 181 ·20 |
| 21 | 0 20 52 ·38 | 3 22 54 ·3 | 181 ·00 |
| 22 | 0 23 5 ·75 | 3 41 0 ·3 | 180 ·80 |
| 23 | 0 25 19 ·21 | N. 3 59 5 ·1 | 180 ·58 |
| | *SATURDAY* 16. | | |
| 0 | 0 27 32 ·77 | N. 4 17 8 ·6 | 180 ·33 |
| 1 | 0 29 46 ·43 | 4 35 10 ·6 | 180 ·07 |
| 2 | 0 32 0 ·20 | 4 53 11 ·0 | 179 ·78 |
| 3 | 0 34 14 ·09 | 5 11 9 ·7 | 179 ·47 |
| 4 | 0 36 28 ·09 | 5 29 6 ·5 | 179 ·15 |
| 5 | 0 38 42 ·21 | 5 47 1 ·4 | 178 ·80 |
| 6 | 0 40 56 ·46 | 6 4 54 ·2 | 178 ·43 |
| 7 | 0 43 10 ·85 | 6 22 44 ·8 | 178 ·03 |
| 8 | 0 45 25 ·36 | 6 40 33 ·0 | 177 ·63 |
| 9 | 0 47 40 ·02 | 6 58 18 ·8 | 177 ·20 |
| 10 | 0 49 54 ·82 | 7 16 2 ·0 | 176 ·73 |
| 11 | 0 52 9 ·77 | 7 33 42 ·4 | 176 ·28 |
| 12 | 0 54 24 ·87 | 7 51 20 ·1 | 175 ·78 |
| 13 | 0 56 40 ·13 | 8 8 54 ·8 | 175 ·28 |
| 14 | 0 58 55 ·55 | 8 26 26 ·5 | 174 ·73 |
| 15 | 1 1 11 ·13 | 8 43 54 ·9 | 174 ·18 |
| 16 | 1 3 26 ·89 | 9 1 20 ·0 | 173 ·62 |
| 17 | 1 5 42 ·83 | 9 18 41 ·7 | 173 ·02 |
| 18 | 1 7 58 ·94 | 9 35 59 ·8 | 172 ·40 |
| 19 | 1 10 15 ·23 | 9 53 14 ·2 | 171 ·77 |
| 20 | 1 12 31 ·71 | 10 10 24 ·8 | 171 ·10 |
| 21 | 1 14 48 ·39 | 10 27 31 ·4 | 170 ·42 |
| 22 | 1 17 5 ·26 | 10 44 33 ·9 | 169 ·73 |
| 23 | 1 19 22 ·32 | 11 1 32 ·3 | 169 ·02 |
| 24 | 1 21 39 ·59 | N. 11 18 26 ·4 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SUNDAY* 17 | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 1 21 39 ·59 | N. 11 18 26 ·4 | 168 ·27 |
| 1 | 1 23 57 ·07 | 11 35 16 ·0 | 167 ·52 |
| 2 | 1 26 14 ·75 | 11 52 1 ·1 | 166 ·73 |
| 3 | 1 28 32 ·66 | 12 8 41 ·5 | 165 ·93 |
| 4 | 1 30 50 ·77 | 12 25 17 ·1 | 165 ·10 |
| 5 | 1 33 9 ·11 | 12 41 47 ·7 | 164 ·28 |
| 6 | 1 35 27 ·68 | 12 58 13 ·4 | 163 ·43 |
| 7 | 1 37 46 ·47 | 13 14 34 ·0 | 162 ·53 |
| 8 | 1 40 5 ·49 | 13 30 49 ·2 | 161 ·67 |
| 9 | 1 42 24 ·75 | 13 46 59 ·2 | 160 ·73 |
| 10 | 1 44 44 ·24 | 14 3 3 ·6 | 159 ·80 |
| 11 | 1 47 3 ·97 | 14 19 2 ·4 | 158 ·85 |
| 12 | 1 49 23 ·94 | 14 34 55 ·5 | 157 ·88 |
| 13 | 1 51 44 ·16 | 14 50 42 ·8 | 156 ·90 |
| 14 | 1 54 4 ·62 | 15 6 24 ·2 | 155 ·88 |
| 15 | 1 56 25 ·32 | 15 21 59 ·5 | 154 ·85 |
| 16 | 1 58 46 ·28 | 15 37 28 ·6 | 153 ·82 |
| 17 | 2 1 7 ·50 | 15 52 51 ·5 | 152 ·73 |
| 18 | 2 3 28 ·97 | 16 8 7 ·9 | 151 ·65 |
| 19 | 2 5 50 ·70 | 16 23 17 ·8 | 150 ·55 |
| 20 | 2 8 12 ·69 | 16 38 21 ·1 | 149 ·43 |
| 21 | 2 10 34 ·94 | 16 53 17 ·7 | 148 ·28 |
| 22 | 2 12 57 ·45 | 17 8 7 ·4 | 147 ·12 |
| 23 | 2 15 20 ·23 | N. 17 22 50 ·1 | 145 ·95 |
| | *MONDAY* 18. | | |
| 0 | 2 17 43 ·27 | N. 17 37 25 ·8 | 144 ·75 |
| 1 | 2 20 6 ·58 | 17 51 54 ·3 | 143 ·53 |
| 2 | 2 22 30 ·16 | 18 6 15 ·5 | 142 ·28 |
| 3 | 2 24 54 ·00 | 18 20 29 ·2 | 141 ·07 |
| 4 | 2 27 18 ·12 | 18 34 35 ·6 | 139 ·78 |
| 5 | 2 29 42 ·51 | 18 48 34 ·3 | 138 ·50 |
| 6 | 2 32 7 ·16 | 19 2 25 ·3 | 137 ·20 |
| 7 | 2 34 32 ·09 | 19 16 8 ·5 | 135 ·88 |
| 8 | 2 36 57 ·29 | 19 29 43 ·8 | 134 ·55 |
| 9 | 2 39 22 ·76 | 19 43 11 ·1 | 133 ·20 |
| 10 | 2 41 48 ·50 | 19 56 30 ·3 | 131 ·85 |
| 11 | 2 44 14 ·52 | 20 9 41 ·4 | 130 ·45 |
| 12 | 2 46 40 ·80 | 20 22 44 ·1 | 129 ·07 |
| 13 | 2 49 7 ·35 | 20 35 38 ·5 | 127 ·65 |
| 14 | 2 51 34 ·17 | 20 48 24 ·4 | 126 ·22 |
| 15 | 2 54 1 ·26 | 21 1 1 ·7 | 124 ·78 |
| 16 | 2 56 28 ·62 | 21 13 30 ·4 | 123 ·32 |
| 17 | 2 58 56 ·24 | 21 25 50 ·3 | 121 ·85 |
| 18 | 3 1 24 ·13 | 21 38 1 ·4 | 120 ·35 |
| 19 | 3 3 52 ·27 | 21 50 3 ·5 | 118 ·87 |
| 20 | 3 6 20 ·68 | 22 1 56 ·7 | 117 ·33 |
| 21 | 3 8 49 ·35 | 22 13 40 ·7 | 115 ·80 |
| 22 | 3 11 18 ·28 | 22 25 15 ·5 | 114 ·27 |
| [illegible] | 3 13 47 ·46 | 22 36 41 ·1 | 112 ·70 |
| | 3 16 16 ·89 | N. 22 47 57 ·3 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 19. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 3 16 16 ·89 | N. 22 47 57 ·3 | 111 ·13 |
| 1 | 3 18 46 ·57 | 22 59 4 ·1 | 109 ·53 |
| 2 | 3 21 16 ·50 | 23 10 1 ·3 | 107 ·95 |
| 3 | 3 23 46 ·67 | 23 20 49 ·0 | 106 ·33 |
| 4 | 3 26 17 ·09 | 23 31 27 ·0 | 104 ·72 |
| 5 | 3 28 47 ·74 | 23 41 55 ·3 | 103 ·07 |
| 6 | 3 31 18 ·62 | 23 52 13 ·7 | 101 ·43 |
| 7 | 3 33 49 ·73 | 24 2 22 ·3 | 99 ·77 |
| 8 | 3 36 21 ·07 | 24 12 20 ·9 | 98 ·08 |
| 9 | 3 38 52 ·63 | 24 22 9 ·4 | 96 ·42 |
| 10 | 3 41 24 ·41 | 24 31 47 ·9 | 94 ·72 |
| 11 | 3 43 56 ·40 | 24 41 16 ·2 | 93 ·02 |
| 12 | 3 46 28 ·60 | 24 50 34 ·3 | 91 ·30 |
| 13 | 3 49 1 ·01 | 24 59 42 ·1 | 89 ·57 |
| 14 | 3 51 33 ·61 | 25 8 39 ·5 | 87 ·85 |
| 15 | 3 54 6 ·40 | 25 17 26 ·6 | 86 ·10 |
| 16 | 3 56 39 ·39 | 25 26 3 ·2 | 84 ·35 |
| 17 | 3 59 12 ·56 | 25 34 29 ·3 | 82 ·58 |
| 18 | 4 1 45 ·90 | 25 42 44 ·8 | 80 ·82 |
| 19 | 4 4 19 ·41 | 25 50 49 ·7 | 79 ·03 |
| 20 | 4 6 53 ·09 | 25 58 43 ·9 | 77 ·25 |
| 21 | 4 9 26 ·93 | 26 6 27 ·4 | 75 ·47 |
| 22 | 4 12 0 ·92 | 26 14 0 ·2 | 73 ·67 |
| 23 | 4 14 35 ·05 | N. 26 21 22 ·2 | 71 ·85 |
| | *WEDNESDAY* 20. | | |
| 0 | 4 17 9 ·33 | N. 26 28 33 ·3 | 70 ·05 |
| 1 | 4 19 43 ·74 | 26 35 33 ·6 | 68 ·22 |
| 2 | 4 22 18 ·28 | 26 42 22 ·9 | 66 ·40 |
| 3 | 4 24 52 ·94 | 26 49 1 ·3 | 64 ·5[illegible] |
| 4 | 4 27 27 ·71 | 26 55 28 ·7 | 62 ·7[illegible] |
| 5 | 4 30 2 ·59 | 27 1 45 ·1 | 60 ·9[illegible] |
| 6 | 4 32 37 ·56 | 27 7 50 ·5 | 59 ·03 |
| 7 | 4 35 12 ·62 | 27 13 44 ·7 | 57 ·20 |
| 8 | 4 37 47 ·77 | 27 19 27 ·9 | 55 ·35 |
| 9 | 4 40 22 ·99 | 27 25 0 ·0 | 53 ·48 |
| 10 | 4 42 58 ·28 | 27 30 20 ·9 | 51 ·63 |
| 11 | 4 45 33 ·63 | 27 35 30 ·7 | 49 ·77 |
| 12 | 4 48 9 ·03 | 27 40 29 ·3 | 47 ·90 |
| 13 | 4 50 44 ·48 | 27 45 16 ·7 | 46 ·03 |
| 14 | 4 53 19 ·96 | 27 49 52 ·9 | 44 ·17 |
| 15 | 4 55 55 ·46 | 27 54 17 ·9 | 42 ·28 |
| 16 | 4 58 30 ·99 | 27 58 31 ·6 | 40 ·43 |
| 17 | 5 1 6 ·52 | 28 2 34 ·2 | 38 ·53 |
| 18 | 5 3 42 ·06 | 28 6 25 ·4 | 36 ·68 |
| 19 | 5 6 17 ·60 | 28 10 5 ·5 | 34 ·80 |
| 20 | 5 8 53 ·11 | 28 13 34 ·3 | 32 ·93 |
| 21 | 5 11 28 ·61 | 28 16 51 ·9 | 31 ·05 |
| 22 | 5 14 4 ·07 | 28 19 58 ·2 | 29 ·18 |
| 23 | 5 16 39 ·49 | 28 22 53 ·3 | 27 ·32 |
| 24 | 5 19 14 ·86 | N. 28 25 37 ·2 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. |
|---|---|---|---|
| | *THURSDAY* 21. | | |
| | h m s | ° ′ ″ | ″ |
| | 5 19 14·86 | N.28 25 37·2 | 25·45 |
| | 5 21 50·17 | 28 28 9·9 | 23·57 |
| | 5 24 25·42 | 28 30 31·3 | 21·72 |
| | 5 27 0·59 | 28 32 41·6 | 19·85 |
| | 5 29 35·68 | 28 34 40·7 | 17·98 |
| | 5 32 10·67 | 28 36 28·6 | 16·13 |
| | 5 34 45·56 | 28 38 5·4 | 14·28 |
| | 5 37 20·34 | 28 39 31·1 | 12·45 |
| | 5 39 55·01 | 28 40 45·8 | 10·58 |
| | 5 42 29·54 | 28 41 49·3 | 8·75 |
| | 5 45 3·94 | 28 42 41·8 | 6·93 |
| | 5 47 38·20 | 28 43 23·4 | 5·08 |
| | 5 50 12·30 | 28 43 53·9 | 3·27 |
| | 5 52 46·24 | 28 44 13·5 | 1·45 |
| | 5 55 20·01 | 28 44 22·2 | 0·37 |
| | 5 57 53·61 | 28 44 20·0 | 2·17 |
| | 6 0 27·01 | 28 44 7·0 | 3·95 |
| | 6 3 0·22 | 28 43 43·3 | 5·77 |
| | 6 5 33·24 | 28 43 8·7 | 7·53 |
| | 6 8 6·04 | 28 42 23·5 | 9·32 |
| | 6 10 38·62 | 28 41 27·6 | 11·08 |
| | 6 13 10·98 | 28 40 21·1 | 12·83 |
| | 6 15 43·11 | 28 39 4·1 | 14·60 |
| | 6 18 15·00 | N.28 37 36·5 | 16·33 |
| | *FRIDAY* 22. | | |
| | 6 20 46·64 | N.28 35 58·5 | 18·07 |
| | 6 23 18·03 | 28 34 10·1 | 19·80 |
| | 6 25 49·15 | 28 32 11·3 | 21·52 |
| | 6 28 20·01 | 28 30 2·2 | 23·22 |
| | 6 30 50·60 | 28 27 42·9 | 24·92 |
| | 6 33 20·90 | 28 25 13·4 | 26·60 |
| | 6 35 50·91 | 28 22 33·8 | 28·28 |
| | 6 38 20·63 | 28 19 44·1 | 29·95 |
| | 6 40 50·04 | 28 16 44·4 | 31·60 |
| | 6 43 19·15 | 28 13 34·8 | 33·25 |
| | 6 45 47·95 | 28 10 15·3 | 34·88 |
| | 6 48 16·43 | 28 6 46·0 | 36·52 |
| | 6 50 44·58 | 28 3 6·9 | 38·12 |
| | 6 53 12·40 | 27 59 18·2 | 39·73 |
| | 6 55 39·88 | 27 55 19·8 | 41·32 |
| | 6 58 7·02 | 27 51 11·9 | 42·88 |
| | 7 0 33·81 | 27 46 54·6 | 44·47 |
| | 7 3 0·25 | 27 42 27·8 | 46·00 |
| | 7 5 26·34 | 27 37 51·8 | 47·55 |
| | | 27 33 6·5 | 49·08 |
| | | 27 28 12·0 | 50·60 |
| | | 27 23 8·4 | 52·10 |
| | | 27 17 55·8 | 53·60 |
| | | 12 34·2 | 55·07 |
| | | 7 3·8 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. |
|---|---|---|---|
| | *SATURDAY* 23. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 7 19 55·17 | N.27 7 3·8 | 56·53 |
| 1 | 7 22 18·65 | 27 1 24·6 | 57·98 |
| 2 | 7 24 41·74 | 26 55 36·7 | 59·43 |
| 3 | 7 27 4·45 | 26 49 40·1 | 60·85 |
| 4 | 7 29 26·76 | 26 43 35·0 | 62·25 |
| 5 | 7 31 48·67 | 26 37 21·5 | 63·67 |
| 6 | 7 34 10·19 | 26 30 59·5 | 65·07 |
| 7 | 7 36 31·30 | 26 24 29·1 | 66·42 |
| 8 | 7 38 52·01 | 26 17 50·6 | 67·78 |
| 9 | 7 41 12·32 | 26 11 3·9 | 69·13 |
| 10 | 7 43 32·21 | 26 4 9·1 | 70·48 |
| 11 | 7 45 51·70 | 25 57 6·2 | 71·78 |
| 12 | 7 48 10·77 | 25 49 55·5 | 73·10 |
| 13 | 7 50 29·43 | 25 42 36·9 | 74·38 |
| 14 | 7 52 47·68 | 25 35 10·6 | 75·68 |
| 15 | 7 55 5·50 | 25 27 36·5 | 76·93 |
| 16 | 7 57 22·92 | 25 19 54·9 | 78·20 |
| 17 | 7 59 39·91 | 25 12 5·7 | 79·42 |
| 18 | 8 1 56·48 | 25 4 9·2 | 80·67 |
| 19 | 8 4 12·64 | 24 56 5·2 | 81·87 |
| 20 | 8 6 28·37 | 24 47 54·0 | 83·07 |
| 21 | 8 8 43·69 | 24 39 35·6 | 84·25 |
| 22 | 8 10 58·58 | 24 31 10·1 | 85·42 |
| 23 | 8 13 13·06 | N.24 22 37·6 | 86·58 |
| | *SUNDAY* 24. | | |
| 0 | 8 15 27·11 | N.24 13 58·1 | 87·72 |
| 1 | 8 17 40·74 | 24 5 11·8 | 88·85 |
| 2 | 8 19 53·95 | 23 56 18·7 | 89·97 |
| 3 | 8 22 6·74 | 23 47 18·9 | 91·08 |
| 4 | 8 24 19·12 | 23 38 12·4 | 92·15 |
| 5 | 8 26 31·07 | 23 28 59·5 | 93·23 |
| 6 | 8 28 42·60 | 23 19 40·1 | 94·30 |
| 7 | 8 30 53·72 | 23 10 14·3 | 95·35 |
| 8 | 8 33 4·42 | 23 0 42·2 | 96·38 |
| 9 | 8 35 14·71 | 22 51 3·9 | 97·42 |
| 10 | 8 37 24·58 | 22 41 19·4 | 98·42 |
| 11 | 8 39 34·04 | 22 31 28·9 | 99·42 |
| 12 | 8 41 43·09 | 22 21 32·4 | 100·40 |
| 13 | 8 43 51·74 | 22 11 30·0 | 101·37 |
| 14 | 8 45 59·97 | 22 1 21·8 | 102·33 |
| 15 | 8 48 7·81 | 21 51 7·8 | 103·27 |
| 16 | 8 50 15·24 | 21 40 48·2 | 104·20 |
| 17 | 8 52 22·26 | 21 30 23·0 | 105·12 |
| 18 | 8 54 28·89 | 21 19 52·3 | 106·03 |
| 19 | 8 56 35·13 | 21 9 16·1 | 106·92 |
| 20 | 8 58 40·96 | 20 58 34·6 | 107·80 |
| 21 | 9 0 46·41 | 20 47 47·8 | 108·67 |
| 22 | 9 2 51·46 | 20 36 55·8 | 109·52 |
| 23 | 9 4 56·13 | 20 25 58·7 | 110·37 |
| 24 | 9 7 0·41 | N.20 14 56·5 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *MONDAY* 25. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 9 7 0·41 | N.20 14 56·5 | 111·20 |
| 1 | 9 9 4·31 | 20 3 49·3 | 112·00 |
| 2 | 9 11 7·83 | 19 52 37·3 | 112·82 |
| 3 | 9 13 10·97 | 19 41 20·4 | 113·62 |
| 4 | 9 15 13·74 | 19 29 58·7 | 114·38 |
| 5 | 9 17 16·13 | 19 18 32·4 | 115·17 |
| 6 | 9 19 18·16 | 19 7 1·4 | 115·92 |
| 7 | 9 21 19·82 | 18 55 25·9 | 116·67 |
| 8 | 9 23 21·12 | 18 43 45·9 | 117·38 |
| 9 | 9 25 22·06 | 18 32 1·6 | 118·13 |
| 10 | 9 27 22·64 | 18 20 12·8 | 118·82 |
| 11 | 9 29 22·87 | 18 8 19·9 | 119·53 |
| 12 | 9 31 22·75 | 17 56 22·7 | 120·22 |
| 13 | 9 33 22·29 | 17 44 21·4 | 120·90 |
| 14 | 9 35 21·48 | 17 32 16·0 | 121·55 |
| 15 | 9 37 20·33 | 17 20 6·7 | 122·22 |
| 16 | 9 39 18·85 | 17 7 53·4 | 122·85 |
| 17 | 9 41 17·04 | 16 55 36·3 | 123·48 |
| 18 | 9 43 14·90 | 16 43 15·4 | 124·10 |
| 19 | 9 45 12·43 | 16 30 50·8 | 124·70 |
| 20 | 9 47 9·64 | 16 18 22·6 | 125·30 |
| 21 | 9 49 6·53 | 16 5 50·8 | 125·90 |
| 22 | 9 51 3·11 | 15 53 15·4 | 126·45 |
| 23 | 9 52 59·38 | N.15 40 36·7 | 127·03 |
| | *TUESDAY* 26. | | |
| 0 | 9 54 55·34 | N.15 27 54·5 | 127·58 |
| 1 | 9 56 51·00 | 15 15 9·0 | 128·12 |
| 2 | 9 58 46·36 | 15 2 20·3 | 128·65 |
| 3 | 10 0 41·42 | 14 49 28·4 | 129·18 |
| 4 | 10 2 36·20 | 14 36 33·3 | 129·68 |
| 5 | 10 4 30·68 | 14 23 35·2 | 130·18 |
| 6 | 10 6 24·88 | 14 10 34·1 | 130·68 |
| 7 | 10 8 18·80 | 13 57 30·0 | 131·15 |
| 8 | 10 10 12·45 | 13 44 23·1 | 131·63 |
| 9 | 10 12 5·83 | 13 31 13·3 | 132·08 |
| 10 | 10 13 58·93 | 13 18 0·8 | 132·55 |
| 11 | 10 15 51·78 | 13 4 45·5 | 132·98 |
| 12 | 10 17 44·36 | 12 51 27·6 | 133·42 |
| 13 | 10 19 36·69 | 12 38 7·1 | 133·83 |
| 14 | 10 21 28·77 | 12 24 44·1 | 134·25 |
| 15 | 10 23 20·60 | 12 11 18·6 | 134·67 |
| 16 | 10 25 12·19 | 11 57 50·6 | 135·03 |
| 17 | 10 27 3·54 | 11 44 20·4 | 135·43 |
| 18 | 10 28 54·66 | 11 30 47·8 | 135·80 |
| 19 | 10 30 45·54 | 11 17 13·0 | 136·18 |
| 20 | 10 32 36·20 | 11 3 35·9 | 136·52 |
| 21 | 10 34 26·64 | 10 49 56·8 | 136·87 |
| 22 | 10 36 16·85 | 10 36 15·6 | 137·20 |
| 23 | 10 38 6·86 | 10 22 32·4 | 137·53 |
| 24 | 10 39 56·65 | N.10 8 47·2 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *WEDNESDAY* 27. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 10 39 56·65 | N.10 8 47·2 | 137·85 |
| 1 | 10 41 46·24 | 9 55 0·1 | 138·15 |
| 2 | 10 43 35·63 | 9 41 11·2 | 138·45 |
| 3 | 10 45 24·82 | 9 27 20·5 | 138·75 |
| 4 | 10 47 13·82 | 9 13 28·0 | 139·03 |
| 5 | 10 49 2·63 | 8 59 33·8 | 139·30 |
| 6 | 10 50 51·25 | 8 45 38·0 | 139·57 |
| 7 | 10 52 39·70 | 8 31 40·6 | 139·82 |
| 8 | 10 54 27·96 | 8 17 41·7 | 140·07 |
| 9 | 10 56 16·06 | 8 3 41·3 | 140·30 |
| 10 | 10 58 3·99 | 7 49 39·5 | 140·53 |
| 11 | 10 59 51·75 | 7 35 36·3 | 140·75 |
| 12 | 11 1 39·35 | 7 21 31·8 | 140·97 |
| 13 | 11 3 26·80 | 7 7 26·0 | 141·17 |
| 14 | 11 5 14·09 | 6 53 19·0 | 141·37 |
| 15 | 11 7 1·24 | 6 39 10·8 | 141·55 |
| 16 | 11 8 48·24 | 6 25 1·5 | 141·72 |
| 17 | 11 10 35·11 | 6 10 51·2 | 141·90 |
| 18 | 11 12 21·84 | 5 56 39·8 | 142·07 |
| 19 | 11 14 8·44 | 5 42 27·4 | 142·20 |
| 20 | 11 15 54·91 | 5 28 14·2 | 142·35 |
| 21 | 11 17 41·26 | 5 14 0·1 | 142·48 |
| 22 | 11 19 27·50 | 4 59 45·2 | 142·62 |
| 23 | 11 21 13·62 | N. 4 45 29·5 | 142·73 |
| | *THURSDAY* 28. | | |
| 0 | 11 22 59·63 | N. 4 31 13·1 | 142·83 |
| 1 | 11 24 45·54 | 4 16 56·1 | 142·95 |
| 2 | 11 26 31·34 | 4 2 38·4 | 143·03 |
| 3 | 11 28 17·06 | 3 48 20·2 | 143·13 |
| 4 | 11 30 2·67 | 3 34 1·4 | 143·20 |
| 5 | 11 31 48·20 | 3 19 42·2 | 143·27 |
| 6 | 11 33 33·65 | 3 5 22·6 | 143·33 |
| 7 | 11 35 19·01 | 2 51 2·6 | 143·38 |
| 8 | 11 37 4·30 | 2 36 42·3 | 143·45 |
| 9 | 11 38 49·52 | 2 22 21·6 | 143·47 |
| 10 | 11 40 34·66 | 2 8 0·8 | 143·50 |
| 11 | 11 42 19·75 | 1 53 39·8 | 143·53 |
| 12 | 11 44 4·77 | 1 39 18·6 | 143·55 |
| 13 | 11 45 49·74 | 1 24 57·3 | 143·55 |
| 14 | 11 47 34·65 | 1 10 36·0 | 143·55 |
| 15 | 11 49 19·52 | 0 56 14·7 | 143·55 |
| 16 | 11 51 4·35 | 0 41 53·4 | 143·52 |
| 17 | 11 52 49·14 | 0 27 32·3 | 143·52 |
| 18 | 11 54 33·89 | N. 0 13 11·2 | 143·47 |
| 19 | 11 56 18·61 | S. 0 1 9·6 | 143·43 |
| 20 | 11 58 3·30 | 0 15 30·2 | 143·38 |
| 21 | 11 59 47·96 | 0 29 50·5 | 143·33 |
| 22 | 12 1 32·61 | 0 44 10·5 | 143·27 |
| 23 | 12 3 17·25 | 0 58 30·1 | 143·20 |
| 24 | 12 5 1·87 | S. 1 12 49·3 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| ight Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|
| *FRIDAY* 29. | | |
| h m s | ° ′ ″ | ″ |
| 2 5 1 ·87 | S. 1 12 49 ·3 | 143 ·12 |
| 2 6 46 ·49 | 1 27 8 ·0 | 143 ·03 |
| 2 8 31 ·10 | 1 41 26 ·2 | 142 ·95 |
| 2 10 15 ·72 | 1 55 43 ·9 | 142 ·83 |
| 2 12 0 ·34 | 2 10 0 ·9 | 142 ·73 |
| 2 13 44 ·97 | 2 24 17 ·3 | 142 ·62 |
| 2 15 29 ·61 | 2 38 33 ·0 | 142 ·48 |
| 2 17 14 ·27 | 2 52 47 ·9 | 142 ·37 |
| 2 18 58 ·95 | 3 7 2 ·1 | 142 ·22 |
| 2 20 43 ·65 | 3 21 15 ·4 | 142 ·07 |
| 2 22 28 ·39 | 3 35 27 ·8 | 141 ·92 |
| 2 24 13 ·16 | 3 49 39 ·3 | 141 ·75 |
| 2 25 57 ·96 | 4 3 49 ·8 | 141 ·58 |
| 2 27 42 ·80 | 4 17 59 ·3 | 141 ·40 |
| 2 29 27 ·69 | 4 32 7 ·7 | 141 ·22 |
| 2 31 12 ·63 | 4 46 15 ·0 | 141 ·02 |
| 2 32 57 ·62 | 5 0 21 ·1 | 140 ·82 |
| 2 34 42 ·67 | 5 14 26 ·0 | 140 ·62 |
| 2 36 27 ·78 | 5 28 29 ·7 | 140 ·38 |
| 2 38 12 ·95 | 5 42 32 ·0 | 140 ·17 |
| 2 39 58 ·19 | 5 56 33 ·0 | 139 ·93 |
| 2 41 43 ·50 | 6 10 32 ·6 | 139 ·70 |
| 2 43 28 ·88 | 6 24 30 ·8 | 139 ·45 |
| 2 45 14 ·35 | S. 6 38 27 ·5 | 139 ·20 |
| *SATURDAY* 30. | | |
| 2 46 59 ·90 | S. 6 52 22 ·7 | 138 ·93 |
| 2 48 45 ·54 | 7 6 16 ·3 | 138 ·67 |
| 2 50 31 ·26 | 7 20 8 ·3 | 138 ·38 |
| 2 52 17 ·08 | 7 33 58 ·6 | 138 ·10 |
| 2 54 3 ·00 | 7 47 47 ·2 | 137 ·80 |
| 2 55 49 ·03 | 8 1 34 ·0 | 137 ·52 |
| 2 57 35 ·15 | 8 15 19 ·1 | 137 ·20 |
| 2 59 21 ·39 | 8 29 2 ·3 | 136 ·87 |
| 3 1 7 ·75 | 8 42 43 ·5 | 136 ·55 |
| 3 2 54 ·22 | 8 56 22 ·8 | 136 ·23 |
| 3 4 40 ·81 | 9 10 0 ·2 | 135 ·87 |
| 3 6 27 ·53 | 9 23 35 ·4 | 135 ·53 |
| 3 8 14 ·37 | 9 37 8 ·6 | 135 ·17 |
| 3 10 1 ·34 | 9 50 39 ·6 | 134 ·82 |
| 3 11 48 ·45 | 10 4 8 ·5 | 134 ·43 |
| 3 13 35 ·70 | 10 17 35 ·1 | 134 ·05 |
| 3 15 23 ·10 | 10 30 59 ·4 | 133 ·67 |
| 3 17 10 ·63 | 10 44 21 ·4 | 133 ·27 |
| 3 18 58 ·32 | 10 57 41 ·0 | 132 ·87 |
| 3 20 46 ·17 | 11 10 58 ·2 | 132 ·43 |
| 3 22 34 ·17 | 11 24 12 ·8 | 132 ·03 |
| 3 24 22 ·33 | 11 37 25 ·0 | 131 ·60 |
| 3 26 10 ·66 | 11 50 34 ·6 | 131 ·15 |
| 3 27 59 ·15 | 12 3 41 ·5 | 130 ·72 |
| 3 29 47 ·82 | S. 12 16 45 ·8 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SUNDAY* 31. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 13 29 47 ·82 | S. 12 16 45 ·8 | 130 ·25 |
| 1 | 13 31 36 ·66 | 12 29 47 ·3 | 129 ·80 |
| 2 | 13 33 25 ·68 | 12 42 46 ·1 | 129 ·33 |
| 3 | 13 35 14 ·88 | 12 55 42 ·1 | 128 ·83 |
| 4 | 13 37 4 ·27 | 13 8 35 ·1 | 128 ·37 |
| 5 | 13 38 53 ·84 | 13 21 25 ·3 | 127 ·85 |
| 6 | 13 40 43 ·60 | 13 34 12 ·4 | 127 ·37 |
| 7 | 13 42 33 ·56 | 13 46 56 ·6 | 126 ·85 |
| 8 | 13 44 23 ·72 | 13 59 37 ·7 | 126 ·32 |
| 9 | 13 46 14 ·08 | 14 12 15 ·6 | 125 ·80 |
| 10 | 13 48 4 ·65 | 14 24 50 ·4 | 125 ·25 |
| 11 | 13 49 55 ·42 | 14 37 21 ·9 | 124 ·72 |
| 12 | 13 51 46 ·41 | 14 49 50 ·2 | 124 ·17 |
| 13 | 13 53 37 ·61 | 15 2 15 ·2 | 123 ·58 |
| 14 | 13 55 29 ·02 | 15 14 36 ·7 | 123 ·03 |
| 15 | 13 57 20 ·66 | 15 26 54 ·9 | 122 ·43 |
| 16 | 13 59 12 ·52 | 15 39 9 ·5 | 121 ·87 |
| 17 | 14 1 4 ·61 | 15 51 20 ·7 | 121 ·25 |
| 18 | 14 2 56 ·92 | 16 3 28 ·2 | 120 ·65 |
| 19 | 14 4 49 ·48 | 16 15 32 ·1 | 120 ·03 |
| 20 | 14 6 42 ·26 | 16 27 32 ·3 | 119 ·42 |
| 21 | 14 8 35 ·28 | 16 39 28 ·8 | 118 ·77 |
| 22 | 14 10 28 ·55 | 16 51 21 ·4 | 118 ·13 |
| 23 | 14 12 22 ·06 | S. 17 3 10 ·2 | 117 ·48 |
| | *MONDAY, APRIL* 1. | | |
| 0 | 14 14 15 ·81 | S. 17 14 55 ·1 | |

### PHASES OF THE MOON.

| | d | h | m |
|---|---|---|---|
| ☾ *Last Quarter* - - | 8 | 1 | 31 ·7 |
| ● New Moon - - - | 15 | 2 | 12 ·7 |
| ☽ *First Quarter* - - | 21 | 17 | 28 ·5 |
| ○ Full Moon - - - | 29 | 14 | 18 ·8 |

| | d | h |
|---|---|---|
| ☾ Apogee - - - - - - - - | 3 | 15 |
| ☾ Perigee - - - - - - - - | 15 | 23 |
| ☾ Apogee - - - - - - - - | 30 | 23 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P. L. of diff. | III h. | P. L. of diff. | VI h. | P. L. of diff. | IX h. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ |
| 1 | Pollux | W. | 62 5 43 | 2998 | 63 35 59 | 3003 | 65 6 8 | 3009 | 66 36 10 |
| | Regulus | W. | 25 18 48 | 3007 | 26 48 52 | 3012 | 28 18 50 | 3017 | 29 48 42 |
| | Jupiter | E. | 24 43 35 | 3017 | 23 13 43 | 3029 | 21 44 6 | 3043 | 20 14 46 |
| | Spica ♍ | E. | 28 46 12 | 2994 | 27 15 52 | 3000 | 25 45 39 | 3006 | 24 15 34 |
| | Antares | E. | 74 40 13 | 2994 | 73 9 53 | 3000 | 71 39 40 | 3006 | 70 9 34 |
| | Saturn | E. | 77 7 17 | 3040 | 75 37 54 | 3046 | 74 8 38 | 3051 | 72 39 29 |
| 2 | Pollux | W. | 74 4 46 | 3039 | 75 34 11 | 3043 | 77 3 31 | 3046 | 78 32 47 |
| | Regulus | W. | 37 16 43 | 3043 | 38 46 3 | 3046 | 40 15 19 | 3050 | 41 44 30 |
| | Antares | E. | 62 40 43 | 3036 | 61 11 15 | 3040 | 59 41 52 | 3044 | 58 12 34 |
| | Saturn | E. | 65 15 33 | 3086 | 63 47 6 | 3092 | 62 18 46 | 3096 | 60 50 32 |
| 3 | Pollux | W. | 85 57 55 | 3067 | 87 26 45 | 3069 | 88 55 33 | 3072 | 90 24 17 |
| | Regulus | W. | 49 9 22 | 3069 | 50 38 10 | 3070 | 52 6 56 | 3073 | 53 35 39 |
| | Mars | W. | 23 6 8 | 3000 | 24 36 21 | 2995 | 26 6 40 | 2991 | 27 37 4 |
| | Antares | E. | 50 47 12 | 3064 | 49 18 19 | 3067 | 47 49 29 | 3069 | 46 20 42 |
| | Saturn | E. | 53 30 54 | 3125 | 52 3 15 | 3130 | 50 35 42 | 3135 | 49 8 15 |
| 4 | Regulus | W. | 60 58 47 | 3079 | 62 27 22 | 3079 | 63 55 57 | 3078 | 65 24 33 |
| | Mars | W. | 35 10 2 | 2974 | 36 40 47 | 2973 | 38 11 34 | 2970 | 39 42 25 |
| | Antares | E. | 38 57 14 | 3076 | 37 28 35 | 3076 | 35 59 56 | 3076 | 34 31 17 |
| | Saturn | E. | 41 52 15 | 3161 | 40 25 19 | 3166 | 38 58 29 | 3171 | 37 31 45 |
| | Sun | E. | 134 40 43 | 3461 | 133 19 35 | 3460 | 131 58 26 | 3460 | 130 37 17 |
| 5 | Mars | W. | 47 17 32 | 2951 | 48 48 46 | 2947 | 50 20 5 | 2943 | 51 51 30 |
| | Jupiter | W. | 23 39 32 | 3083 | 25 8 3 | 3074 | 26 36 44 | 3066 | 28 5 35 |
| | Spica ♍ | W. | 18 46 50 | 3067 | 20 15 40 | 3064 | 21 44 34 | 3059 | 23 13 34 |
| | Saturn | E. | 30 19 48 | 3210 | 28 53 52 | 3220 | 27 28 7 | 3233 | 26 2 37 |
| | α Aquilæ | E. | 82 27 31 | 3880 | 81 13 51 | 3884 | 80 0 15 | 3889 | 78 46 44 |
| | Sun | E. | 123 51 9 | 3448 | 122 29 47 | 3445 | 121 8 21 | 3442 | 119 46 52 |
| 6 | Mars | W. | 59 30 10 | 2910 | 61 2 16 | 2903 | 62 34 31 | 2896 | 64 6 55 |
| | Jupiter | W. | 35 32 7 | 3022 | 37 1 53 | 3013 | 38 31 50 | 3005 | 40 1 57 |
| | Spica ♍ | W. | 30 39 47 | 3031 | 32 9 21 | 3024 | 33 39 4 | 3017 | 35 8 55 |
| | α Aquilæ | E. | 72 40 33 | 3928 | 71 27 42 | 3938 | 70 15 1 | 3949 | 69 2 31 |
| | Sun | E. | 112 58 3 | 3409 | 111 35 57 | 3402 | 110 13 43 | 3395 | 108 51 21 |
| 7 | Mars | W. | 71 51 31 | 2845 | 73 25 1 | 2835 | 74 58 44 | 2825 | 76 32 40 |
| | Jupiter | W. | 47 35 18 | 2949 | 49 6 35 | 2938 | 50 38 6 | 2927 | 52 9 50 |
| | Spica ♍ | W. | 42 40 34 | 2968 | 44 11 27 | 2958 | 45 42 32 | 2947 | 47 13 51 |
| | Sun | E. | 101 57 4 | 3340 | 100 33 39 | 3330 | 99 10 2 | 3319 | 97 46 12 |
| 8 | Mars | W. | 84 26 2 | 2754 | 86 1 30 | 2741 | 87 37 16 | 2727 | 89 13 20 |
| | Jupiter | W. | 59 52 16 | 2854 | 61 25 34 | 2841 | 62 59 9 | 2826 | 64 33 3 |
| | Spica ♍ | W. | 54 53 57 | 2877 | 56 26 45 | 2864 | 57 59 50 | 2850 | 59 33 13 |
| | Sun | E. | 90 43 26 | 3241 | 89 18 6 | 3227 | 87 52 29 | 3212 | 86 26 34 |
| 9 | Mars | W. | 97 18 23 | 2640 | 98 56 24 | 2624 | 100 34 47 | 2607 | 102 13 32 |
| | Jupiter | W. | 72 27 19 | 2735 | 74 3 12 | 2719 | 75 39 26 | 2703 | 77 16 2 |
| | Spica ♍ | W. | 67 24 50 | 2761 | 69 0 9 | 2744 | 70 35 51 | 2728 | 72 11 53 |
| | Antares | W. | 21 31 1 | 2761 | 23 6 20 | 2745 | 24 42 0 | 2729 | 26 18 2 |
| | Saturn | W. | 20 9 45 | 3036 | 21 39 13 | 2983 | 23 9 47 | 2938 | 24 41 18 |
| | Sun | E. | 79 12 15 | 3114 | 77 44 23 | 3096 | 76 16 9 | 3079 | 74 47 34 |
| 10 | Jupiter | W. | 85 24 50 | 2598 | 87 3 48 | 2580 | 88 43 10 | 2561 | 90 22 58 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Midnight. | P.L. of diff. | XV h. | P.L. of diff. | XVIII h. | P.L. of diff. | XXI h. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 1 | Pollux | W. | 68 6 6 | 3019 | 69 35 55 | 3024 | 71 5 38 | 3029 | 72 35 15 | 3034 |
| | Regulus | W. | 31 18 29 | 3025 | 32 48 11 | 3030 | 34 17 47 | 3035 | 35 47 17 | 3038 |
| | Jupiter | E. | 18 45 46 | 3077 | 17 17 8 | 3098 | 15 48 56 | 3124 | 14 21 15 | 3158 |
| | Spica ♍ | E. | 22 45 36 | 3017 | 21 15 44 | 3022 | 19 45 58 | 3027 | 18 16 19 | 3032 |
| | Antares | E. | 68 39 35 | 3017 | 67 9 43 | 3022 | 65 39 57 | 3026 | 64 10 17 | 3031 |
| | Saturn | E. | 71 10 27 | 3063 | 69 41 32 | 3070 | 68 12 46 | 3075 | 66 44 6 | 3081 |
| 2 | Pollux | W. | 80 1 57 | 3055 | 81 31 2 | 3057 | 83 0 4 | 3061 | 84 29 1 | 3064 |
| | Regulus | W. | 43 13 37 | 3057 | 44 42 39 | 3061 | 46 11 37 | 3064 | 47 40 31 | 3066 |
| | Antares | E. | 56 43 21 | 3052 | 55 14 13 | 3056 | 53 45 9 | 3059 | 52 16 9 | 3061 |
| | Saturn | E. | 59 22 24 | 3107 | 57 54 23 | 3111 | 56 26 27 | 3117 | 54 58 38 | 3121 |
| 3 | Pollux | W. | 91 53 0 | 3075 | 93 21 40 | 3076 | 94 50 19 | 3077 | 96 18 57 | 3078 |
| | Regulus | W. | 55 4 19 | 3076 | 56 32 58 | 3078 | 58 1 35 | 3078 | 59 30 12 | 3079 |
| | Mars | W. | 29 7 33 | 2985 | 30 38 5 | 2981 | 32 8 41 | 2979 | 33 39 20 | 2977 |
| | Antares | E. | 44 51 57 | 3073 | 43 23 14 | 3074 | 41 54 33 | 3075 | 40 25 53 | 3076 |
| | Saturn | E. | 47 40 52 | 3143 | 46 13 35 | 3148 | 44 46 23 | 3153 | 43 19 17 | 3156 |
| 4 | Regulus | W. | 66 53 10 | 3077 | 68 21 48 | 3075 | 69 50 28 | 3074 | 71 19 10 | 3073 |
| | Mars | W. | 41 13 19 | 2965 | 42 44 16 | 2962 | 44 15 17 | 2958 | 45 46 22 | 2954 |
| | Antares | E. | 33 2 38 | 3074 | 31 33 57 | 3073 | 30 5 14 | 3071 | 28 36 29 | 3069 |
| | Saturn | E. | 36 5 7 | 3181 | 34 38 35 | 3188 | 33 12 11 | 3194 | 31 45 55 | 3202 |
| | Sun | E. | 129 16 7 | 3458 | 127 54 56 | 3456 | 126 33 43 | 3454 | 125 12 27 | 3452 |
| 5 | Mars | W. | 53 23 1 | 2933 | 54 54 38 | 2928 | 56 26 21 | 2922 | 57 58 12 | 2916 |
| | Jupiter | W. | 29 34 34 | 3051 | 31 3 44 | 3044 | 32 33 2 | 3036 | 34 2 30 | 3029 |
| | Spica ♍ | W. | 24 42 37 | 3052 | 26 11 45 | 3047 | 27 41 0 | 3043 | 29 10 20 | 3037 |
| | Saturn | E. | 24 37 24 | 3265 | 23 12 32 | 3288 | 21 48 6 | 3314 | 20 24 11 | 3348 |
| | α Aquilæ | E. | 77 33 17 | 3899 | 76 19 56 | 3905 | 75 6 41 | 3912 | 73 53 33 | 3919 |
| | Sun | E. | 118 25 17 | 3433 | 117 3 38 | 3427 | 115 41 52 | 3422 | 114 20 1 | 3416 |
| 6 | Mars | W. | 65 39 29 | 2880 | 67 12 13 | 2872 | 68 45 8 | 2863 | 70 18 14 | 2855 |
| | Jupiter | W. | 41 32 14 | 2987 | 43 2 43 | 2979 | 44 33 22 | 2969 | 46 4 14 | 2959 |
| | Spica ♍ | W. | 36 38 54 | 3003 | 38 9 3 | 2994 | 39 39 23 | 2986 | 41 9 53 | 2978 |
| | α Aquilæ | E. | 67 50 12 | 3974 | 66 38 7 | 3988 | 65 26 15 | 4005 | 64 14 40 | 4022 |
| | Sun | E. | 107 28 50 | 3379 | 106 6 9 | 3370 | 104 43 18 | 3361 | 103 20 17 | 3351 |
| 7 | Mars | W. | 78 6 50 | 2802 | 79 41 15 | 2791 | 81 15 55 | 2779 | 82 50 51 | 2767 |
| | Jupiter | W. | 53 41 48 | 2905 | 55 14 1 | 2892 | 56 46 30 | 2880 | 58 19 15 | 2867 |
| | Spica ♍ | W. | 48 45 23 | 2926 | 50 17 9 | 2915 | 51 49 9 | 2902 | 53 21 25 | 2890 |
| | Sun | E. | 96 22 9 | 3294 | 94 57 51 | 3282 | 93 33 18 | 3269 | 92 8 30 | 3255 |
| 8 | Mars | W. | 90 49 42 | 2700 | 92 26 22 | 2685 | 94 3 22 | 2670 | 95 40 42 | 2655 |
| | Jupiter | W. | 66 7 15 | 2798 | 67 41 46 | 2782 | 69 16 37 | 2767 | 70 51 48 | 2752 |
| | Spica ♍ | W. | 61 6 54 | 2822 | 62 40 53 | 2807 | 64 15 12 | 2791 | 65 49 51 | 2776 |
| | Sun | E. | 85 0 21 | 3181 | 83 33 49 | 3165 | 82 6 58 | 3148 | 80 39 47 | 3131 |
| 9 | Mars | W. | 103 52 39 | 2575 | 105 32 8 | 2558 | 107 12 1 | 2541 | 108 52 17 | 2524 |
| | Jupiter | W. | 78 53 1 | 2669 | 80 30 23 | 2652 | 82 8 8 | 2634 | 83 46 17 | 2616 |
| | Spica ♍ | W. | 73 48 19 | 2695 | 75 25 6 | 2677 | 77 2 17 | 2659 | 78 39 52 | 2641 |
| | Antares | W. | 27 54 26 | 2695 | 29 31 13 | 2678 | 31 8 23 | 2660 | 32 45 57 | 2642 |
| | Saturn | W. | 26 13 38 | 2862 | 27 46 46 | 2828 | 29 20 37 | 2796 | 30 55 10 | 2767 |
| | Sun | E. | 73 18 36 | 3043 | 71 49 16 | 3023 | 70 19 32 | 3004 | 68 49 24 | 2985 |
| 10 | Jupiter | W. | 92 3 11 | 2525 | 93 43 49 | 2506 | 95 24 54 | 2487 | 97 6 25 | 2469 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P. L. of diff. | III h. | P. L. of diff. | VI h. | P. L. of diff. | IX h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 10 | Spica ♍ | W. | 80 17 51 | 2623 | 81 56 14 | 2605 | 83 35 2 | 2587 | 85 14 15 | 2569 |
| | Antares | W. | 34 23 55 | 2624 | 36 2 18 | 2606 | 37 41 5 | 2588 | 39 20 17 | 2569 |
| | Saturn | W. | 32 30 21 | 2738 | 34 6 10 | 2711 | 35 42 36 | 2685 | 37 19 36 | 2660 |
| | Sun | E. | 67 18 53 | 2966 | 65 47 57 | 2946 | 64 16 37 | 2926 | 62 44 51 | 2906 |
| 11 | Jupiter | W. | 98 48 22 | 2450 | 100 30 46 | 2431 | 102 13 36 | 2412 | 103 56 53 | 2394 |
| | Antares | W. | 47 42 46 | 2475 | 49 24 34 | 2456 | 51 6 49 | 2437 | 52 49 31 | 2418 |
| | Saturn | W. | 45 32 53 | 2541 | 47 13 9 | 2520 | 48 53 55 | 2497 | 50 35 12 | 2476 |
| | Sun | E. | 54 59 35 | 2804 | 53 25 13 | 2785 | 51 50 25 | 2764 | 50 15 9 | 2744 |
| 12 | Jupiter | W. | 112 39 55 | 2302 | 114 25 51 | 2285 | 116 12 12 | 2268 | 117 58 58 | 2251 |
| | Antares | W. | 61 29 41 | 2326 | 63 15 3 | 2308 | 65 0 51 | 2290 | 66 47 5 | 2273 |
| | Saturn | W. | 59 9 4 | 2373 | 60 53 17 | 2353 | 62 37 59 | 2335 | 64 23 8 | 2316 |
| | Sun | E. | 42 12 11 | 2644 | 40 34 16 | 2625 | 38 55 55 | 2605 | 37 17 7 | 2587 |
| 17 | Sun | W. | 26 57 58 | 2321 | 28 43 27 | 2328 | 30 28 46 | 2336 | 32 13 53 | 2344 |
| | Aldebaran | E. | 45 6 28 | 2180 | 43 17 30 | 2198 | 41 28 59 | 2218 | 39 40 58 | 2241 |
| | Pollux | E. | 87 37 57 | 2028 | 85 45 6 | 2035 | 83 52 26 | 2042 | 81 59 57 | 2050 |
| 18 | Sun | W. | 40 56 10 | 2396 | 42 39 51 | 2408 | 44 23 14 | 2420 | 46 6 20 | 2433 |
| | Venus | W. | 19 46 48 | 2513 | 21 27 43 | 2520 | 23 8 28 | 2528 | 24 49 2 | 2538 |
| | Aldebaran | E. | 30 50 48 | 2408 | 29 7 24 | 2457 | 27 25 10 | 2515 | 25 44 17 | 2584 |
| | Pollux | E. | 72 40 53 | 2098 | 70 49 51 | 2109 | 68 59 6 | 2122 | 67 8 40 | 2133 |
| 19 | Sun | W. | 54 37 3 | 2504 | 56 18 11 | 2520 | 57 58 57 | 2535 | 59 39 22 | 2551 |
| | Venus | W. | 33 8 4 | 2600 | 34 46 59 | 2614 | 36 25 35 | 2629 | 38 3 51 | 2644 |
| | α Arietis | W. | 18 0 45 | 2482 | 19 42 24 | 2450 | 21 24 48 | 2429 | 23 7 41 | 2415 |
| | Pollux | E. | 58 1 15 | 2200 | 56 12 47 | 2214 | 54 24 41 | 2229 | 52 36 57 | 2244 |
| | Mars | E. | 115 2 14 | 2090 | 113 10 59 | 2107 | 111 20 10 | 2122 | 109 29 44 | 2136 |
| 20 | Sun | W. | 67 55 54 | 2633 | 69 34 4 | 2649 | 71 11 53 | 2666 | 72 49 18 | 2683 |
| | Venus | W. | 46 9 55 | 2724 | 47 46 3 | 2741 | 49 21 49 | 2758 | 50 57 12 | 2775 |
| | α Arietis | W. | 31 44 31 | 2415 | 33 27 44 | 2421 | 35 10 49 | 2430 | 36 53 41 | 2439 |
| | Pollux | E. | 43 43 53 | 2322 | 41 58 25 | 2337 | 40 13 20 | 2354 | 38 28 39 | 2370 |
| | Regulus | E. | 80 32 26 | 2319 | 78 46 54 | 2335 | 77 1 45 | 2351 | 75 16 59 | 2368 |
| | Mars | E. | 100 23 3 | 2211 | 98 34 51 | 2225 | 96 47 1 | 2241 | 94 59 35 | 2258 |
| 21 | Sun | W. | 80 50 45 | 2768 | 82 25 55 | 2785 | 84 0 43 | 2802 | 85 35 9 | 2811 |
| | Venus | W. | 58 48 36 | 2859 | 60 21 47 | 2876 | 61 54 36 | 2894 | 63 27 3 | 291 |
| | α Arietis | W. | 45 24 23 | 2496 | 47 5 42 | 2509 | 48 46 43 | 2522 | 50 27 25 | 2533 |
| | Regulus | E. | 66 38 49 | 2445 | 64 56 19 | 2461 | 63 14 11 | 2477 | 61 32 25 | 2493 |
| | Mars | E. | 86 8 4 | 2334 | 84 22 54 | 2350 | 82 38 7 | 2365 | 80 53 42 | 2380 |
| | Jupiter | E. | 114 15 50 | 2414 | 112 32 35 | 2430 | 110 49 41 | 2444 | 109 7 9 | 2459 |
| 22 | Sun | W. | 93 21 59 | 2899 | 94 54 19 | 2916 | 96 26 18 | 2931 | 97 57 58 | 2949 |
| | Venus | W. | 71 3 59 | 2993 | 72 34 21 | 3009 | 74 4 23 | 3025 | 75 34 5 | 304 |
| | α Arietis | W. | 58 46 23 | 2602 | 60 25 16 | 2615 | 62 3 50 | 2629 | 63 42 6 | 2643 |
| | Aldebaran | W. | 29 2 28 | 2880 | 30 35 13 | 2865 | 32 8 17 | 2854 | 33 41 35 | 2844 |
| | Regulus | E. | 53 8 58 | 2568 | 51 29 19 | 2583 | 49 50 1 | 2597 | 48 11 2 | 2611 |
| | Mars | E. | 72 17 1 | 2455 | 70 34 44 | 2470 | 68 52 48 | 2484 | 67 11 12 | 2499 |
| | Jupiter | E. | 100 39 45 | 2533 | 98 59 18 | 2547 | 97 19 10 | 2561 | 95 39 22 | 2576 |
| 23 | Sun | W. | 105 31 33 | 3020 | 107 1 21 | 3034 | 108 30 52 | 3048 | 110 0 6 | 3061 |
| | Venus | W. | 82 57 51 | 3115 | 84 25 42 | 3130 | 85 53 15 | 3143 | 87 20 32 | 3157 |
| | Aldebaran | W. | 41 29 26 | 2842 | 43 3 0 | 2845 | 44 36 29 | 2849 | 46 9 54 | 2854 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Midnight. | P. L. of diff. | XV h. | P. L. of diff. | XVIII h. | P. L. of diff. | XXI h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 10 | Spica ♍ | W. | 86 53 53 | 2550 | 88 33 57 | 2531 | 90 14 27 | 2512 | 91 55 23 | 2494 |
| | Antares | W. | 40 59 55 | 2550 | 42 39 59 | 2532 | 44 20 28 | 2512 | 46 1 24 | 2494 |
| | Saturn | W. | 38 57 10 | 2635 | 40 35 17 | 2611 | 42 13 57 | 2588 | 43 53 9 | 2564 |
| | Sun | E. | 61 12 40 | 2886 | 59 40 3 | 2866 | 58 7 0 | 2845 | 56 33 31 | 2824 |
| 11 | Jupiter | W. | 105 40 36 | 2375 | 107 24 46 | 2357 | 109 9 23 | 2339 | 110 54 26 | 2321 |
| | Antares | W. | 54 32 40 | 2399 | 56 16 16 | 2381 | 58 0 18 | 2363 | 59 44 46 | 2344 |
| | Saturn | W. | 52 16 59 | 2455 | 53 59 16 | 2434 | 55 42 3 | 2413 | 57 25 19 | 2393 |
| | Sun | E. | 48 39 27 | 2723 | 47 3 18 | 2704 | 45 26 43 | 2683 | 43 49 40 | 2663 |
| 12 | Jupiter | W. | 119 46 10 | 2234 | 121 33 47 | 2218 | 123 21 48 | 2202 | 125 10 13 | 2186 |
| | Antares | W. | 68 33 44 | 2256 | 70 20 49 | 2239 | 72 8 19 | 2223 | 73 56 13 | 2206 |
| | Saturn | W. | 66 8 44 | 2298 | 67 54 47 | 2280 | 69 41 16 | 2263 | 71 28 9 | 2245 |
| | Sun | E. | 35 37 54 | 2568 | 33 58 15 | 2551 | 32 18 12 | 2533 | 30 37 44 | 2515 |
| 17 | Sun | W. | 33 58 48 | 2353 | 35 43 30 | 2362 | 37 27 59 | 2373 | 39 12 12 | 2384 |
| | Aldebaran | E. | 37 53 31 | 2266 | 36 6 41 | 2295 | 34 20 34 | 2327 | 32 35 14 | 2364 |
| | Pollux | E. | 80 7 40 | 2058 | 78 15 36 | 2068 | 76 23 47 | 2077 | 74 32 12 | 2087 |
| 18 | Sun | W. | 47 49 8 | 2446 | 49 31 37 | 2460 | 51 13 46 | 2475 | 52 55 35 | 2490 |
| | Venus | W. | 26 29 23 | 2549 | 28 9 28 | 2561 | 29 49 17 | 2573 | 31 28 49 | 2585 |
| | Aldebaran | E. | 24 5 0 | 2666 | 22 27 35 | 2767 | 20 52 24 | 2892 | 19 19 55 | 3047 |
| | Pollux | E. | 65 18 31 | 2146 | 63 28 42 | 2159 | 61 39 12 | 2172 | 59 50 3 | 2186 |
| 19 | Sun | W. | 61 19 25 | 2567 | 62 59 6 | 2583 | 64 38 24 | 2599 | 66 17 20 | 2615 |
| | Venus | W. | 39 41 46 | 2659 | 41 19 21 | 2675 | 42 56 34 | 2692 | 44 33 25 | 2708 |
| | α Arietis | W. | 24 50 54 | 2408 | 26 34 17 | 2406 | 28 17 43 | 2406 | 30 1 9 | 2409 |
| | Pollux | E. | 50 49 35 | 2259 | 49 2 35 | 2275 | 47 15 58 | 2290 | 45 29 44 | 2306 |
| | Mars | E. | 107 39 39 | 2150 | 105 49 56 | 2165 | 104 0 36 | 2180 | 102 11 38 | 2195 |
| 20 | Sun | W. | 74 26 21 | 2700 | 76 3 1 | 2717 | 77 39 18 | 2734 | 79 15 13 | 2751 |
| | Venus | W. | 52 32 13 | 2792 | 54 6 52 | 2808 | 55 41 9 | 2825 | 57 15 4 | 2843 |
| | α Arietis | W. | 38 36 20 | 2449 | 40 18 45 | 2460 | 42 0 54 | 2472 | 43 42 47 | 2484 |
| | Pollux | E. | 36 44 21 | 2387 | 35 0 27 | 2403 | 33 16 56 | 2419 | 31 33 48 | 2436 |
| | Regulus | E. | 73 32 36 | 2382 | 71 48 35 | 2398 | 70 4 57 | 2414 | 68 21 42 | 2429 |
| | Mars | E. | 93 12 31 | 2272 | 91 25 50 | 2287 | 89 39 32 | 2303 | 87 53 37 | 2318 |
| 21 | Sun | W. | 87 9 14 | 2835 | 88 42 57 | 2852 | 90 16 18 | 2867 | 91 49 19 | 2884 |
| | Venus | W. | 64 59 8 | 2928 | 66 30 52 | 2944 | 68 2 15 | 2961 | 69 33 17 | 2977 |
| | α Arietis | W. | 52 7 50 | 2548 | 53 47 56 | 2561 | 55 27 44 | 2575 | 57 7 13 | 2589 |
| | Regulus | E. | 59 51 0 | 2508 | 58 9 58 | 2523 | 56 29 17 | 2538 | 54 48 57 | 2553 |
| | Mars | E. | 79 9 38 | 2395 | 77 25 56 | 2410 | 75 42 36 | 2426 | 73 59 38 | 2441 |
| | Jupiter | E. | 107 24 58 | 2474 | 105 43 9 | 2489 | 104 1 40 | 2504 | 102 20 33 | 2518 |
| 22 | Sun | W. | 99 29 19 | 2961 | 101 0 20 | 2977 | 102 31 2 | 2991 | 104 1 26 | 3005 |
| | Venus | W. | 77 3 27 | 3056 | 78 32 31 | 3071 | 80 1 16 | 3087 | 81 29 42 | 3101 |
| | α Arietis | W. | 65 20 4 | 2655 | 66 57 44 | 2668 | 68 35 7 | 2681 | 70 12 13 | 2694 |
| | Aldebaran | W. | 35 15 3 | 2842 | 36 48 36 | 2839 | 38 22 13 | 2839 | 39 55 50 | 2840 |
| | Regulus | E. | 46 32 24 | 2627 | 44 54 5 | 2641 | 43 16 5 | 2655 | 41 38 24 | 2669 |
| | Mars | E. | 65 29 56 | 2512 | 63 49 0 | 2526 | 62 8 23 | 2540 | 60 28 5 | 2553 |
| | Jupiter | E. | 93 59 54 | 2589 | 92 20 44 | 2603 | 90 41 53 | 2616 | 89 3 20 | 2630 |
| 23 | Sun | W. | 111 29 3 | 3074 | 112 57 45 | 3087 | 114 26 10 | 3100 | 115 54 20 | 3112 |
| | Venus | W. | 88 47 32 | 3171 | 90 14 16 | 3184 | 91 40 44 | 3198 | 93 6 56 | 3210 |
| | Aldebaran | W. | 47 43 12 | 2859 | 49 16 23 | 2864 | 50 49 28 | 2871 | 52 22 24 | 2877 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III h. | P.L. of diff. | VI h. | P.L. of diff. | IX h. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 23 | Regulus | E. | 40 1 2 | 2681 | 38 23 57 | 2695 | 36 47 11 | 2708 | 35 10 42 | 2722 |
| | Mars | E. | 58 48 5 | 2567 | 57 8 24 | 2579 | 55 29 0 | 2593 | 53 49 55 | 2606 |
| | Jupiter | E. | 87 25 6 | 2642 | 85 47 8 | 2655 | 84 9 28 | 2668 | 82 32 6 | 2680 |
| 24 | Sun | W. | 117 22 15 | 3124 | 118 49 55 | 3137 | 120 17 20 | 3148 | 121 44 32 | 3159 |
| | Venus | W. | 94 32 54 | 3223 | 95 58 36 | 3235 | 97 24 4 | 3247 | 98 49 18 | 3259 |
| | Aldebaran | W. | 53 55 12 | 2884 | 55 27 52 | 2891 | 57 0 23 | 2898 | 58 32 45 | 2905 |
| | Mars | E. | 45 38 42 | 2666 | 44 1 16 | 2677 | 42 24 5 | 2689 | 40 47 10 | 2699 |
| | Jupiter | E. | 74 29 12 | 2739 | 72 53 24 | 2749 | 71 17 49 | 2760 | 69 42 29 | 2771 |
| | Spica ♍ | E. | 81 9 22 | 2772 | 79 34 18 | 2783 | 77 59 28 | 2794 | 76 24 52 | 2805 |
| 25 | Sun | W. | 128 57 12 | 3213 | 130 23 6 | 3221 | 131 48 50 | 3231 | 133 14 22 | 3241 |
| | Aldebaran | W. | 66 12 21 | 2939 | 67 43 50 | 2947 | 69 15 9 | 2954 | 70 46 20 | 2961 |
| | Pollux | W. | 22 20 30 | 2868 | 23 53 30 | 2876 | 25 26 20 | 2883 | 26 59 1 | 2890 |
| | Mars | E. | 32 46 11 | 2753 | 31 10 41 | 2764 | 29 35 26 | 2775 | 28 0 25 | 2785 |
| | Jupiter | E. | 61 49 8 | 2819 | 60 15 5 | 2829 | 58 41 15 | 2838 | 57 7 36 | 2846 |
| | Spica ♍ | E. | 68 35 9 | 2853 | 67 1 50 | 2862 | 65 28 42 | 2870 | 63 55 45 | 2879 |
| 26 | Aldebaran | W. | 78 20 4 | 2995 | 79 50 23 | 3001 | 81 20 35 | 3007 | 82 50 39 | 3013 |
| | Pollux | W. | 34 40 8 | 2925 | 36 11 55 | 2931 | 37 43 34 | 2938 | 39 15 4 | 2945 |
| | Jupiter | E. | 49 22 5 | 2887 | 47 49 30 | 2895 | 46 17 5 | 2902 | 44 44 49 | 2910 |
| | Spica ♍ | E. | 56 13 39 | 2918 | 54 41 43 | 2925 | 53 9 56 | 2932 | 51 38 18 | 2939 |
| | Saturn | E. | 104 38 6 | 2949 | 103 6 49 | 2956 | 101 35 41 | 2962 | 100 4 41 | 2969 |
| 27 | Pollux | W. | 46 50 39 | 2974 | 48 21 24 | 2979 | 49 52 3 | 2985 | 51 22 35 | 2989 |
| | Jupiter | E. | 37 5 51 | 2946 | 35 34 31 | 2953 | 34 3 19 | 2961 | 32 32 17 | 2968 |
| | Spica ♍ | E. | 44 2 11 | 2970 | 42 31 20 | 2975 | 41 0 36 | 2981 | 39 30 0 | 2985 |
| | Antares | E. | 89 56 17 | 2970 | 88 25 27 | 2975 | 86 54 43 | 2981 | 85 24 6 | 2986 |
| | Saturn | E. | 92 31 36 | 2998 | 91 1 20 | 3004 | 89 31 12 | 3009 | 88 1 10 | 3014 |
| 28 | Pollux | W. | 58 53 44 | 3013 | 60 23 41 | 3017 | 61 53 33 | 3021 | 63 23 20 | 3025 |
| | Regulus | W. | 22 7 23 | 3026 | 23 37 3 | 3029 | 25 6 40 | 3032 | 26 36 13 | 3034 |
| | Spica ♍ | E. | 31 58 29 | 3010 | 30 28 29 | 3014 | 28 58 33 | 3018 | 27 28 43 | 3022 |
| | Antares | E. | 77 52 37 | 3010 | 76 22 36 | 3014 | 74 52 40 | 3018 | 73 22 49 | 3022 |
| | Saturn | E. | 80 32 35 | 3039 | 79 3 10 | 3043 | 77 33 50 | 3047 | 76 4 36 | 3051 |
| 29 | Pollux | W. | 70 51 5 | 3042 | 72 20 26 | 3045 | 73 49 43 | 3048 | 75 18 57 | 3051 |
| | Regulus | W. | 34 3 14 | 3047 | 35 32 28 | 3049 | 37 1 40 | 3052 | 38 30 48 | 3054 |
| | Mars | W. | 17 20 29 | 2977 | 18 51 11 | 2974 | 20 21 56 | 2973 | 21 52 43 | 2972 |
| | Antares | E. | 65 54 47 | 3039 | 64 25 23 | 3043 | 62 56 3 | 3046 | 61 26 47 | 3048 |
| | Saturn | E. | 68 39 42 | 3072 | 67 10 58 | 3076 | 65 42 19 | 3079 | 64 13 44 | 3083 |
| 30 | Pollux | W. | 82 44 18 | 3062 | 84 13 14 | 3064 | 85 42 8 | 3065 | 87 11 0 | 3066 |
| | Regulus | W. | 45 55 50 | 3065 | 47 24 43 | 3065 | 48 53 35 | 3067 | 50 22 25 | 3069 |
| | Mars | W. | 29 26 48 | 2973 | 30 57 35 | 2974 | 32 28 21 | 2974 | 33 59 7 | 2975 |
| | Antares | E. | 54 1 11 | 3060 | 52 32 12 | 3062 | 51 3 16 | 3063 | 49 34 21 | 3065 |
| | Saturn | E. | 56 51 56 | 3101 | 55 23 48 | 3104 | 53 55 43 | 3108 | 52 27 43 | 3111 |
| 31 | Regulus | W. | 57 46 13 | 3073 | 59 14 56 | 3074 | 60 43 38 | 3073 | 62 12 21 | 3073 |
| | Mars | W. | 41 32 38 | 2978 | 43 3 18 | 2979 | 44 33 57 | 2978 | 46 4 37 | 2979 |
| | Antares | E. | 42 10 11 | 3069 | 40 41 24 | 3070 | 39 12 38 | 3070 | 37 43 52 | 3070 |
| | Saturn | E. | 45 8 47 | 3129 | 43 41 13 | 3134 | 42 13 45 | 3138 | 40 46 21 | 3143 |
| | α Aquilæ | E. | 94 58 3 | 3868 | 93 44 11 | 3866 | 92 30 17 | 3865 | 91 16 22 | 3863 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Midnight. | P.L. of diff. | XV$^h$. | P.L. of diff. | XVIII$^h$. | P.L. of diff. | XXI$^h$. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 23 | Regulus | E. | 33 34 31 | 2735 | 31 58 37 | 2747 | 30 23 0 | 2760 | 28 47 40 | 2772 |
| | Mars | E. | 52 11 8 | 2618 | 50 32 37 | 2629 | 48 54 22 | 2642 | 47 16 24 | 2654 |
| | Jupiter | E. | 80 54 59 | 2692 | 79 18 9 | 2704 | 77 41 35 | 2716 | 76 5 16 | 2727 |
| 24 | Sun | W. | 123 11 30 | 3171 | 124 38 14 | 3181 | 126 4 46 | 3192 | 127 31 5 | 3202 |
| | Venus | W. | 100 14 18 | 3270 | 101 39 5 | 3281 | 103 3 39 | 3292 | 104 28 0 | 3302 |
| | Aldebaran | W. | 60 4 58 | 2912 | 61 37 2 | 2918 | 63 8 58 | 2926 | 64 40 44 | 2933 |
| | Mars | E. | 39 10 29 | 2710 | 37 34 3 | 2722 | 35 57 52 | 2732 | 34 21 54 | 2743 |
| | Jupiter | E. | 68 7 23 | 2781 | 66 32 30 | 2791 | 64 57 50 | 2801 | 63 23 23 | 2810 |
| | Spica ♍ | E. | 74 50 30 | 2815 | 73 16 21 | 2825 | 71 42 25 | 2834 | 70 8 41 | 2843 |
| 25 | Sun | W. | 134 39 43 | 3250 | 136 4 53 | 3259 | 137 29 53 | 3268 | 138 54 42 | 3275 |
| | Aldebaran | W. | 72 17 21 | 2967 | 73 48 15 | 2975 | 75 18 59 | 2981 | 76 49 36 | 2988 |
| | Pollux | W. | 28 31 32 | 2897 | 30 3 55 | 2905 | 31 36 8 | 2911 | 33 8 13 | 2919 |
| | Mars | E. | 26 25 37 | 2796 | 24 51 4 | 2807 | 23 16 45 | 2818 | 21 42 41 | 2830 |
| | Jupiter | E. | 55 34 8 | 2855 | 54 0 51 | 2863 | 52 27 45 | 2872 | 50 54 50 | 2880 |
| | Spica ♍ | E. | 62 22 59 | 2887 | 60 50 24 | 2895 | 59 17 59 | 2903 | 57 45 44 | 2911 |
| 26 | Aldebaran | W. | 84 20 35 | 3019 | 85 50 24 | 3026 | 87 20 5 | 3031 | 88 49 39 | 3038 |
| | Pollux | W. | 40 46 26 | 2951 | 42 17 40 | 2957 | 43 48 47 | 2962 | 45 19 47 | 2969 |
| | Jupiter | E. | 43 12 43 | 2917 | 41 40 46 | 2925 | 40 8 59 | 2932 | 38 37 21 | 2939 |
| | Spica ♍ | E. | 50 6 49 | 2946 | 48 35 28 | 2951 | 47 4 14 | 2958 | 45 33 9 | 2964 |
| | Saturn | E. | 98 33 49 | 2974 | 97 3 4 | 2981 | 95 32 27 | 2987 | 94 1 58 | 2993 |
| 27 | Pollux | W. | 52 53 1 | 2995 | 54 23 20 | 2999 | 55 53 34 | 3004 | 57 23 42 | 3009 |
| | Jupiter | E. | 31 1 24 | 2975 | 29 30 40 | 2983 | 28 0 6 | 2992 | 26 29 43 | 2999 |
| | Spica ♍ | E. | 37 59 29 | 2991 | 36 29 5 | 2996 | 34 58 47 | 3001 | 33 28 36 | 3005 |
| | Antares | E. | 83 53 36 | 2991 | 82 23 12 | 2996 | 80 52 54 | 3001 | 79 22 43 | 3006 |
| | Saturn | E. | 86 31 15 | 3019 | 85 1 26 | 3024 | 83 31 43 | 3029 | 82 2 6 | 3034 |
| 28 | Pollux | W. | 64 53 1 | 3028 | 66 22 39 | 3032 | 67 52 12 | 3035 | 69 21 41 | 3039 |
| | Regulus | W. | 28 5 44 | 3036 | 29 35 12 | 3039 | 31 4 36 | 3042 | 32 33 57 | 3045 |
| | Spica ♍ | E. | 25 58 58 | 3026 | 24 29 18 | 3029 | 22 59 41 | 3034 | 21 30 10 | 3037 |
| | Antares | E. | 71 53 4 | 3026 | 70 23 23 | 3030 | 68 53 47 | 3033 | 67 24 15 | 3036 |
| | Saturn | E. | 74 35 27 | 3056 | 73 6 23 | 3060 | 71 37 24 | 3065 | 70 8 31 | 3068 |
| 29 | Pollux | W. | 76 48 7 | 3053 | 78 17 14 | 3056 | 79 46 18 | 3058 | 81 15 19 | 3060 |
| | Regulus | W. | 39 59 54 | 3056 | 41 28 57 | 3059 | 42 57 57 | 3061 | 44 26 55 | 3063 |
| | Mars | W. | 23 23 31 | 2971 | 24 54 20 | 2970 | 26 25 10 | 2971 | 27 55 59 | 2971 |
| | Antares | E. | 59 57 34 | 3051 | 58 28 24 | 3053 | 56 59 17 | 3056 | 55 30 13 | 3057 |
| | Saturn | E. | 62 45 14 | 3087 | 61 16 48 | 3090 | 59 48 26 | 3094 | 58 20 9 | 3097 |
| 30 | Pollux | W. | 88 39 51 | 3068 | 90 8 39 | 3069 | 91 37 26 | 3070 | 93 6 12 | 3071 |
| | Regulus | W. | 51 51 13 | 3070 | 53 19 59 | 3070 | 54 48 45 | 3072 | 56 17 29 | 3072 |
| | Mars | W. | 35 29 51 | 2976 | 37 0 34 | 2977 | 38 31 16 | 2978 | 40 1 57 | 2978 |
| | Antares | E. | 48 5 28 | 3066 | 46 36 37 | 3067 | 45 7 47 | 3069 | 43 38 59 | 3069 |
| | Saturn | E. | 50 59 47 | 3115 | 49 31 55 | 3119 | 48 4 8 | 3122 | 46 36 25 | 3126 |
| 31 | Regulus | W. | 63 41 3 | 3073 | 65 9 46 | 3073 | 66 38 29 | 3072 | 68 7 13 | 3071 |
| | Mars | W. | 47 35 16 | 2979 | 49 5 55 | 2979 | 50 36 34 | 2979 | 52 7 13 | 2978 |
| | Antares | E. | 36 15 6 | 3070 | 34 46 20 | 3070 | 33 17 34 | 3069 | 31 48 47 | 3069 |
| | Saturn | E. | 39 19 3 | 3148 | 37 51 51 | 3153 | 36 24 46 | 3159 | 34 57 48 | 3166 |
| | α Aquilæ | E. | 90 2 25 | 3863 | 88 48 28 | 3864 | 87 34 32 | 3865 | 86 20 37 | 3867 |

## CONFIGURATIONS OF THE SATELLITES OF JUPITER

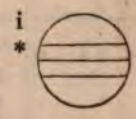
At 13h, Mean Time.

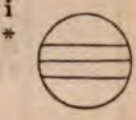
| Day of the Month. | West. | East. |
|---|---|---|
| 1 | 4· ·2 | ○ 1· 3· |
| 2 | ·4 ·1 | ○ ·2 3· |
| 3 | ·4 3· | ○ 2· |
| 4 | ·4 3· 2· | ○ ·1 |
| 5 | ·3 ·4 ·2 1· | ○ |
| 6 | ·3 | ○ ·4 ·1 ·2 |
| 7 | .1 2 | ○· ·3 ·4 |
| 8 | ·2 | ○ 1· 3· ·4 |
| 9 | ·1 | ○ ·2 3· ·4 |
| 10 | 3· | ○ 1· 2· 4· |
| 11 | ·1 ● 3· 2· | ○ 4· |
| 12 | ·3 ·2 1· | ○ 4· |
| 13 | ·3 | ○ ·1 ·2 4· |
| 14 | 1· | 4 ○ ·2 ·3 |
| 15 | 4· ·2 | ○ 1· 3· |
| 16 | 4· ·1 | ○ ·2 3· |
| 17 | 4· 3· | ○ 1· 2· |
| 18 | .4 3· 2· ·1 | ○ |
| 19 | ·4 ·3 ·2 1· | ○ |
| 20 | ·4 ·3 | ○ ·1 ·2 |
| 21 | ·4 1· | ○ 2· ·3 |
| 22 | 2· ·4 | ○ ·1 3· |
| 23 | ● ·2 ·1 | ○ ·4 3· |
| 24 | ○ 3· | ○ 1· 2· 4· |
| 25 | 3· 2· ·1 | ○ ·4 |
| 26 | ○ 1· ·3 ·2 | ○ ·4 |
| 27 | ·3 | ○ ·1 ·2 4· |
| 28 | 1· | ○ 2· ·3 4· |
| 29 | 2· | ○ ·1 4· ·3 |
| 30 | .1 ·2 | ○ 4· 3· |
| 31 | 4· | ○ 3· 1· 2· |

This Table represents, at 13h after *Mean Noon* of each day of the month, the relative posi of the images of Jupiter and his Satellites, as they would appear (disregarding their latitudes) i inverting telescope. Jupiter is indicated by the white circles (○) in the centre of the page Satellites by points. The numerals 1, 2, 3, and 4, annexed to the points, serve to disting the Satellites from each other; and their positions are such as to indicate the directions of the S lites' motions, which are in all cases to be considered as *towards the numerals*. When a Satelli at its greatest elongation, the point is placed above or below the centre of the numeral. A circle (○) at the left or right hand of the page, denotes that the Satellite placed by the side of *on* the disc of Jupiter, and a black circle (●) that it is either *behind* the disc, or in the shado Jupiter.

## ECLIPSES OF THE SATELLITES OF JUPITER.

| Satellite. | Day of the Month. | Mean Time. | Sidereal Time. | PHASE as seen in an inverting Telescope. |
|---|---|---|---|---|
| | | h m s | h m s | |
| I. | 2* | 15 1 2·0 | 13 41 52·1 | Im. |
| | 4 | 9 29 28·1 | 8 17 16·7 | Im. |
| | 6 | 3 57 49·5 | 2 52 36·7 | Im. |
| | 7 | 22 26 15·4 | 21 28 1·3 | Im. |
| | 9* | 16 54 37·8 | 16 3 22·3 | Im. |
| | 11* | 11 23 4·4 | 10 38 47·6 | Im. |
| | 13 | 5 51 27·0 | 5 14 8·8 | Im. |
| | 15 | 0 19 54·6 | 23 49 35·0 | Im. |
| | 16 | 18 48 17·9 | 18 24 57·0 | Im. |
| | 18* | 13 16 45·8 | 13 0 23·6 | Im. |
| | 20 | 7 45 10·1 | 7 35 46·4 | Im. |
| | 22 | 2 13 38·7 | 2 11 13·7 | Im. |
| | 23 | 20 42 3·4 | 20 46 37·1 | Im. |
| | 25* | 15 10 32·6 | 15 22 4·9 | Im. |
| | 27* | 9 38 58·3 | 9 57 29·3 | Im. |
| | 29 | 4 7 27·7 | 4 32 57·3 | Im. |
| | 30 | 22 35 54·4 | 23 8 22·7 | Im. |
| II. | 2 | 3 20 17·8 | 1 59 12·7 | Im. |
| | 5* | 16 37 43·4 | 15 30 38·9 | Im. |
| | 9 | 5 54 50·4 | 5 1 46·5 | Im. |
| | 12 | 19 12 25·5 | 18 33 22·3 | Im. |
| | 16 | 8 29 37·3 | 8 4 34·8 | Im. |
| | 19 | 21 47 22·3 | 21 36 20·5 | Im. |
| | 23* | 11 4 41·2 | 11 7 40·0 | Im. |
| | 27 | 0 22 35·9 | 0 39 35·5 | Im. |
| | 30* | 13 40 0·5 | 14 11 0·7 | Im. |
| III. | 6* | 13 41 44·3 | 12 38 7·5 | Im. |
| | 6* | 16 22 16·1 | 15 19 5·7 | Em. |
| | 13 | 17 39 19·2 | 17 3 57·3 | Im. |
| | 20 | 21 37 10·9 | 21 30 3·9 | Im. |
| | 28 | 1 35 17·8 | 1 56 25·8 | Im. |




## APPROXIMATE SIDEREAL TIMES
OF THE
## OCCULTATIONS OF JUPITER'S SATELLITES BY JUPITER,
AND OF THE
## TRANSITS OF THE SATELLITES AND THEIR SHADOWS OVER THE DISC OF THE PLANET.

| Satellite. | Occultations. | | Transits of Satellites. | | Transits of Shadows. | |
|---|---|---|---|---|---|---|
| | Immersion. | Emersion. | Ingress. | Egress. | Ingress. | Egress. |
| | d h m | d h m | d h m | d h m | d h m | d h m |
| I. | | 2* 16 37 | 1 17 1 | 1 19 14 | 1* 16 15 | 1 18 31 |
| | | 4* 11 10 | 3* 11 34 | 3* 13 47 | 3* 10 51 | 3* 13 6 |
| | | 6 5 43 | 5 6 7 | 5 8 20 | 5 5 26 | 5 7 41 |
| | | 8 0 16 | 7 0 41 | 7 2 53 | 7 0 2 | 7 2 17 |
| | | 9 18 49 | 8 19 14 | 8 21 26 | 8 18 37 | 8 20 52 |
| | | 11* 13 23 | 10* 13 47 | 10* 16 0 | 10* 13 12 | 10* 15 27 |
| | In | 13 7 56 | 12* 8 20 | 12* 10 33 | 12 7 48 | 12* 10 3 |
| | | 15 2 29 | 14 2 53 | 14 5 6 | 14 2 23 | 14 4 38 |
| | the | 16 21 2 | 15 21 26 | 16 23 39 | 15 20 58 | 15 23 13 |
| | | 18* 15 35 | 17* 15 59 | 17 18 12 | 17* 15 34 | 17 17 49 |
| | Shadow. | 20* 10 8 | 19* 10 32 | 19* 12 45 | 19* 10 9 | 19* 12 24 |
| | | 22 4 41 | 21 5 5 | 21 7 18 | 21 4 45 | 21 7 0 |
| | | 23 23 14 | 22 23 38 | 23 1 51 | 22 23 20 | 23 1 35 |
| | | 25 17 47 | 24 18 11 | 24 20 24 | 24 17 56 | 24 20 11 |
| | | 27* 12 20 | 26* 12 44 | 26* 14 57 | 26* 12 31 | 26* 14 46 |
| | | 29 6 52 | 28 7 17 | 28* 9 30 | 28 7 7 | 28* 9 22 |
| | | 31 1 25 | 30 1 50 | 30 4 3 | 30 1 42 | 30 3 57 |
| | | | 31 20 23 | 31 22 36 | 31 20 18 | 31 22 32 |
| II. | | 2 5 51 | 3 22 41 | 4 1 3 | 3 21 13 | 4 23 44 |
| | | 5 19 14 | 7* 12 4 | 7* 14 26 | 7* 10 44 | 7* 13 15 |
| | In | 9* 8 36 | 11 1 26 | 11 3 48 | 11 0 15 | 11 2 46 |
| | | 12 21 59 | 14* 14 48 | 14 17 10 | 14* 13 47 | 14* 16 18 |
| | the | 16* 11 21 | 18 4 10 | 18 6 32 | 18 3 18 | 18 5 49 |
| | | 20 0 43 | 21 17 31 | 21 19 53 | 21* 16 50 | 21 19 20 |
| | Shadow. | 23* 14 4 | 25 6 52 | 25* 9 15 | 25 6 21 | 25* 8 51 |
| | | 27 3 26 | 28 20 13 | 28 22 36 | 28 19 52 | 28 22 22 |
| | | 30* 16 48 | | | | |
| III. | 6* 15 20 | 6 17 47 | 3 1 17 | 3 3 45 | 2 22 13 | 3 1 6 |
| | In | 13 21 37 | 10 5 9 | 10 7 36 | 10 2 40 | 10 5 32 |
| | the | 21 1 23 | 17* 8 57 | 17* 11 25 | 17 7 6 | 17* 9 57 |
| | Shadow. | 28 5 9 | 24* 12 43 | 24* 15 11 | 24* 11 33 | 24* 14 23 |
| | | | 31* 16 27 | 31 18 57 | 31* 15 59 | 31 18 49 |

| Day of the Month. | For correcting the Places of the Fixed Stars. At Mean Midnight, Logarithm of A | B | C | D | Mean Time of Transit of the First Point of Aries. | Mean Equinoctial Time, adding 04·536178 / 04·293960 Days. | From Mean Noon of January 1. Day of the Year. | Fraction of the Year. |
|---|---|---|---|---|---|---|---|---|
| | | | | | h m s | | | |
| 1 | —1 ·2463 | +0 ·8267 | +9 ·3077 | —0 ·9806 | 1 25 20 ·53 | 343 | 59 | ·162 |
| 2 | 1 ·2489 | 0 ·8043 | 9 ·3127 | 0 ·9811 | 1 21 24 ·63 | 344 | 60 | ·164 |
| 3 | 1 ·2513 | 0 ·7806 | 9 ·3176 | 0 ·9815 | 1 17 28 ·73 | 345 | 61 | ·167 |
| 4 | —1 ·2536 | +0 ·7553 | +9 ·3224 | —0 ·9820 | 1 13 32 ·82 | 346 | 62 | ·170 |
| 5 | 1 ·2558 | 0 ·7284 | 9 ·3272 | 0 ·9824 | 1 9 36 ·92 | 347 | 63 | ·172 |
| 6 | 1 ·2578 | 0 ·6996 | 9 ·3318 | 0 ·9828 | 1 5 41 ·01 | 348 | 64 | ·175 |
| 7 | —1 ·2596 | +0 ·6686 | +9 ·3364 | —0 ·9832 | 1 1 45 ·10 | 349 | 65 | ·178 |
| 8 | 1 ·2613 | 0 ·6351 | 9 ·3409 | 0 ·9835 | 0 57 49 ·19 | 350 | 66 | ·181 |
| 9 | 1 ·2629 | 0 ·5986 | 9 ·3453 | 0 ·9838 | 0 53 53 ·27 | 351 | 67 | ·183 |
| 10 | —1 ·2643 | +0 ·5587 | +9 ·3497 | —0 ·9841 | 0 49 57 ·36 | 352 | 68 | ·186 |
| 11 | 1 ·2656 | 0 ·5146 | 9 ·3540 | 0 ·9843 | 0 46 1 ·45 | 353 | 69 | ·189 |
| 12 | 1 ·2668 | 0 ·4654 | 9 ·3583 | 0 ·9846 | 0 42 5 ·54 | 354 | 70 | ·192 |
| 13 | —1 ·2678 | +0 ·4098 | +9 ·3625 | —0 ·9848 | 0 38 9 ·63 | 355 | 71 | ·194 |
| 14 | 1 ·2687 | 0 ·3460 | 9 ·3666 | 0 ·9849 | 0 34 13 ·72 | 356 | 72 | ·197 |
| 15 | 1 ·2695 | 0 ·2709 | 9 ·3707 | 0 ·9851 | 0 30 17 ·82 | 357 | 73 | ·200 |
| 16 | —1 ·2701 | +0 ·1800 | +9 ·3747 | —0 ·9852 | 0 26 21 ·92 | 358 | 74 | ·203 |
| 17 | 1 ·2706 | 0 ·0649 | 9 ·3787 | 0 ·9853 | 0 22 26 ·02 | 359 | 75 | ·205 |
| 18 | 1 ·2710 | 9 ·9076 | 9 ·3826 | 0 ·9853 | 0 18 30 ·11 | 360 | 76 | ·208 |
| 19 | —1 ·2712 | +9 ·6586 | +9 ·3865 | —0 ·9853 | 0 14 34 ·20 | 361 | 77 | ·211 |
| 20 | 1 ·2713 | +9 ·0128 | 9 ·3904 | 0 ·9853 | 0 10 38 ·29 | 362 | 78 | ·214 |
| 21 | 1 ·2713 | —9 ·3970 | 9 ·3942 | 0 ·9853 | 0 6 42 ·38 | 363 | 79 | ·216 |
| 22 | —1 ·2711 | —9 ·7793 | +9 ·3980 | —0 ·9852 | { 0 2 46·47 / 23 58 50·56 } | 364 | 80 | ·219 |
| 23 | 1 ·2708 | 9 ·9793 | 9 ·4018 | 0 ·9851 | 23 54 54 ·64 | 0 | 81 | ·222 |
| 24 | 1 ·2704 | 0 ·1155 | 9 ·4056 | 0 ·9850 | 23 50 58 ·73 | 1 | 82 | ·225 |
| 25 | —1 ·2699 | —0 ·2189 | +9 ·4093 | —0 ·9848 | 23 47 2 ·82 | 2 | 83 | ·227 |
| 26 | 1 ·2692 | 0 ·3021 | 9 ·4130 | 0 ·9846 | 23 43 6 ·92 | 3 | 84 | ·230 |
| 27 | 1 ·2684 | 0 ·3718 | 9 ·4167 | 0 ·9844 | 23 39 11 ·01 | 4 | 85 | ·233 |
| 28 | —1 ·2674 | —0 ·4317 | +9 ·4204 | —0 ·9842 | 23 35 15 ·11 | 5 | 86 | ·235 |
| 29 | 1 ·2664 | 0 ·4842 | 9 ·4240 | 0 ·9839 | 23 31 19 ·21 | 6 | 87 | ·238 |
| 30 | 1 ·2652 | 0 ·5309 | 9 ·4276 | 0 ·9836 | 23 27 23 ·30 | 7 | 88 | ·241 |
| 31 | 1 ·2639 | 0 ·5729 | 9 ·4313 | 0 ·9833 | 23 23 27 ·40 | 8 | 89 | ·244 |
| 32 | —1 ·2624 | —0 ·6111 | +9 ·4349 | —0 ·9829 | 23 19 31 ·49 | 9 | 90 | ·246 |

## AT APPARENT NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | Diff. for 1 hour. | THE SUN'S Apparent Declination. | Diff. for 1 hour. | Sidereal Time of the Semidiam. passing the Meridian.* | Equation of Time, *to be added to* / *subt. from Apparent Time.* | Diff. for 1 hour. |
|---|---|---|---|---|---|---|---|---|
| | | h m s | s | ° ′ ″ | ″ | m s | m s | s |
| Mon. | 1 | 0 40 44 ·51 | 8 ·091 | N. 4 23 19 ·9 | 57 ·80 | 1 4 ·42 | 4 5 ·23 | 0 ·763 |
| Tues. | 2 | 0 44 22 ·69 | 8 ·097 | 4 46 27 ·0 | 57 ·59 | 1 4 ·44 | 3 46 ·92 | 0 ·758 |
| Wed. | 3 | 0 48 1 ·01 | 8 ·103 | 5 9 29 ·1 | 57 ·37 | 1 4 ·46 | 3 28 ·73 | 0 ·751 |
| Thur. | 4 | 0 51 39 ·49 | 8 ·111 | 5 32 25 ·9 | 57 ·13 | 1 4 ·48 | 3 10 ·70 | 0 ·744 |
| Frid. | 5 | 0 55 18 ·15 | 8 ·118 | 5 55 17 ·0 | 56 ·88 | 1 4 ·50 | 2 52 ·85 | 0 ·736 |
| Sat. | 6 | 0 58 56 ·99 | 8 ·127 | 6 18 2 ·2 | 56 ·62 | 1 4 ·53 | 2 35 ·18 | 0 ·727 |
| *Sun.* | 7 | 1 2 36 ·05 | 8 ·137 | 6 40 41 ·0 | 56 ·34 | 1 4 ·56 | 2 17 ·73 | 0 ·718 |
| Mon. | 8 | 1 6 15 ·33 | 8 ·147 | 7 3 13 ·1 | 56 ·05 | 1 4 ·59 | 2 0 ·50 | 0 ·708 |
| Tues. | 9 | 1 9 54 ·86 | 8 ·158 | 7 25 38 ·2 | 55 ·74 | 1 4 ·63 | 1 43 ·52 | 0 ·697 |
| Wed. | 10 | 1 13 34 ·66 | 8 ·169 | 7 47 55 ·9 | 55 ·41 | 1 4 ·67 | 1 26 ·80 | 0 ·685 |
| Thur. | 11 | 1 17 14 ·72 | 8 ·181 | 8 10 5 ·7 | 55 ·07 | 1 4 ·71 | 1 10 ·36 | 0 ·673 |
| Frid. | 12 | 1 20 55 ·07 | 8 ·194 | 8 32 7 ·4 | 54 ·72 | 1 4 ·75 | 0 54 ·21 | 0 ·660 |
| Sat. | 13 | 1 24 35 ·72 | 8 ·208 | 8 54 0 ·6 | 54 ·35 | 1 4 ·79 | 0 38 ·36 | 0 ·647 |
| *Sun.* | 14 | 1 28 16 ·70 | 8 ·222 | 9 15 44 ·9 | 53 ·97 | 1 4 ·84 | 0 22 ·83 | 0 ·633 |
| Mon. | 15 | 1 31 58 ·02 | 8 ·235 | 9 37 20 ·1 | 53 ·57 | 1 4 ·89 | 0 7 ·64 | 0 ·619 |
| Tues. | 16 | 1 35 39 ·67 | 8 ·250 | 9 58 45 ·7 | 53 ·15 | 1 4 ·94 | 0 7 ·22 | 0 ·605 |
| Wed. | 17 | 1 39 21 ·69 | 8 ·266 | 10 20 1 ·3 | 52 ·73 | 1 4 ·99 | 0 21 ·73 | 0 ·589 |
| Thur. | 18 | 1 43 4 ·07 | 8 ·281 | 10 41 6 ·7 | 52 ·28 | 1 5 ·05 | 0 35 ·87 | 0 ·574 |
| Frid. | 19 | 1 46 46 ·82 | 8 ·298 | 11 2 1 ·4 | 51 ·83 | 1 5 ·11 | 0 49 ·64 | 0 ·557 |
| Sat. | 20 | 1 50 29 ·97 | 8 ·314 | 11 22 45 ·2 | 51 ·35 | 1 5 ·17 | 1 3 ·01 | 0 ·541 |
| *Sun.* | 21 | 1 54 13 ·51 | 8 ·332 | 11 43 17 ·6 | 50 ·87 | 1 5 ·23 | 1 15 ·99 | 0 ·523 |
| Mon. | 22 | 1 57 57 ·47 | 8 ·350 | 12 3 38 ·4 | 50 ·37 | 1 5 ·30 | 1 28 ·55 | 0 ·506 |
| Tues. | 23 | 2 1 41 ·86 | 8 ·368 | 12 23 47 ·2 | 49 ·85 | 1 5 ·37 | 1 40 ·69 | 0 ·487 |
| Wed. | 24 | 2 5 26 ·69 | 8 ·387 | 12 43 43 ·7 | 49 ·33 | 1 5 ·44 | 1 52 ·38 | 0 ·468 |
| Thur. | 25 | 2 9 11 ·97 | 8 ·406 | 13 3 27 ·6 | 48 ·79 | 1 5 ·51 | 2 3 ·62 | 0 ·449 |
| Frid. | 26 | 2 12 57 ·71 | 8 ·426 | 13 22 58 ·6 | 48 ·25 | 1 5 ·58 | 2 14 ·39 | 0 ·429 |
| Sat. | 27 | 2 16 43 ·94 | 8 ·447 | 13 42 16 ·5 | 47 ·68 | 1 5 ·65 | 2 24 ·68 | 0 ·408 |
| *Sun.* | 28 | 2 20 30 ·67 | 8 ·468 | 14 1 20 ·8 | 47 ·11 | 1 5 ·72 | 2 34 ·48 | 0 ·387 |
| Mon. | 29 | 2 24 17 ·91 | 8 ·490 | 14 20 11 ·4 | 46 ·53 | 1 5 ·80 | 2 43 ·77 | 0 ·365 |
| Tues. | 30 | 2 28 5 ·68 | 8 ·513 | 14 38 48 ·0 | 45 ·93 | 1 5 ·87 | 2 52 ·53 | 0 ·343 |
| Wed. | 31 | 2 31 53 ·99 | | N. 14 57 10 ·3 | | 1 5 ·95 | 3 0 ·76 | |

* *Mean* Time of the Semidiameter passing may be found by subtracting 0s·18 from the *Sidereal* Time.

## AT MEAN NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | THE SUN'S Apparent Declination. | THE SUN'S Semidiam.* | Equation of Time, to be subt. from / added to Mean Time. | Sidereal Time. |
|---|---|---|---|---|---|---|
| | | h m s | ° ′ ″ | ′ ″ | m s | h m s |
| Mon. | 1 | 0 40 43 ·89 | N. 4 23 16 ·0 | 16 0 ·9 | 4 5 ·29 | 0 36 38 ·60 |
| Tues. | 2 | 0 44 22 ·12 | 4 46 23 ·3 | 16 0 ·7 | 3 46 ·97 | 0 40 35 ·15 |
| Wed. | 3 | 0 48 0 ·48 | 5 9 25 ·7 | 16 0 ·4 | 3 28 ·77 | 0 44 31 ·71 |
| Thur. | 4 | 0 51 39 ·01 | 5 32 22 ·9 | 16 0 ·1 | 3 10 ·74 | 0 48 28 ·27 |
| Frid. | 5 | 0 55 17 ·71 | 5 55 14 ·3 | 15 59 ·8 | 2 52 ·88 | 0 52 24 ·83 |
| Sat. | 6 | 0 58 56 ·60 | 6 17 59 ·7 | 15 59 ·5 | 2 35 ·21 | 0 56 21 ·39 |
| *Sun.* | 7 | 1 2 35 ·70 | 6 40 38 ·8 | 15 59 ·3 | 2 17 ·76 | 1 0 17 ·94 |
| Mon. | 8 | 1 6 15 ·02 | 7 3 11 ·2 | 15 59 ·0 | 2 0 ·52 | 1 4 14 ·50 |
| Tues. | 9 | 1 9 54 ·60 | 7 25 36 ·6 | 15 58 ·7 | 1 43 ·54 | 1 8 11 ·06 |
| Wed. | 10 | 1 13 34 ·43 | 7 47 54 ·5 | 15 58 ·4 | 1 26 ·82 | 1 12 7 ·61 |
| Thur. | 11 | 1 17 14 ·54 | 8 10 4 ·6 | 15 58 ·2 | 1 10 ·38 | 1 16 4 ·16 |
| Frid. | 12 | 1 20 54 ·93 | 8 32 6 ·6 | 15 57 ·9 | 0 54 ·22 | 1 20 0 ·71 |
| Sat. | 13 | 1 24 35 ·62 | 8 54 0 ·0 | 15 57 ·6 | 0 38 ·37 | 1 23 57 ·25 |
| *Sun.* | 14 | 1 28 16 ·64 | 9 15 44 ·6 | 15 57 ·3 | 0 22 ·83 | 1 27 53 ·81 |
| Mon. | 15 | 1 31 58 ·00 | 9 37 20 ·0 | 15 57 ·1 | 0 7 ·64 | 1 31 50 ·36 |
| Tues. | 16 | 1 35 39 ·69 | 9 58 45 ·8 | 15 56 ·8 | 0 7 ·23 | 1 35 46 ·92 |
| Wed. | 17 | 1 39 21 ·74 | 10 20 1 ·6 | 15 56 ·6 | 0 21 ·73 | 1 39 43 ·47 |
| Thur. | 18 | 1 43 4 ·16 | 10 41 7 ·2 | 15 56 ·3 | 0 35 ·88 | 1 43 40 ·04 |
| Frid. | 19 | 1 46 46 ·95 | 11 2 2 ·1 | 15 56 ·0 | 0 49 ·65 | 1 47 36 ·60 |
| Sat. | 20 | 1 50 30 ·13 | 11 22 46 ·1 | 15 55 ·8 | 1 3 ·03 | 1 51 33 ·16 |
| *Sun.* | 21 | 1 54 13 ·71 | 11 43 18 ·7 | 15 55 ·5 | 1 16 ·00 | 1 55 29 ·71 |
| Mon. | 22 | 1 57 57 ·71 | 12 3 39 ·6 | 15 55 ·3 | 1 28 ·56 | 1 59 26 ·27 |
| Tues. | 23 | 2 1 42 ·12 | 12 23 48 ·5 | 15 55 ·1 | 1 40 ·70 | 2 3 22 ·82 |
| Wed. | 24 | 2 5 26 ·98 | 12 43 45 ·2 | 15 54 ·8 | 1 52 ·39 | 2 7 19 ·37 |
| Thur. | 25 | 2 9 12 ·29 | 13 3 29 ·3 | 15 54 ·5 | 2 3 ·63 | 2 11 15 ·92 |
| Frid. | 26 | 2 12 58 ·06 | 13 23 0 ·4 | 15 54 ·3 | 2 14 ·41 | 2 15 12 ·47 |
| Sat. | 27 | 2 16 44 ·32 | 13 42 18 ·4 | 15 54 ·1 | 2 24 ·70 | 2 19 9 ·02 |
| *Sun.* | 28 | 2 20 31 ·07 | 14 1 22 ·9 | 15 53 ·8 | 2 34 ·51 | 2 23 5 ·58 |
| Mon. | 29 | 2 24 18 ·34 | 14 20 13 ·6 | 15 53 ·6 | 2 43 ·79 | 2 27 2 ·13 |
| Tues. | 30 | 2 28 6 ·14 | 14 38 50 ·3 | 15 53 ·3 | 2 52 ·55 | 2 30 58 ·69 |
| Wed. | 31 | 2 31 54 ·47 | N. 14 57 12 ·5 | 15 53 ·1 | 3 0 ·78 | 2 34 55 ·25 |

* The Semidiameter for *Apparent* Noon may be assumed the same as that for *Mean* Noon.

## MEAN TIME.

| Day of the Month. | THE SUN'S *Apparent* Longitude. Noon. | THE SUN'S *Apparent* Latitude. Noon. | Logarithm of the Radius Vector of the Earth. Noon. | THE MOON'S Semidiameter. Noon. | THE MOON'S Semidiameter. Midnight. | THE MOON'S Horizontal Parallax. Noon. | THE MOON'S Horizontal Parallax. Midnight. |
|---|---|---|---|---|---|---|---|
| | ° ′ ″ | ″ | | ′ ″ | ′ ″ | ′ ″ | ′ ″ |
| 1 | 11 4 43·7 | S.0·68 | 9·9999823 | 14 42·8 | 14 43·8 | 53 59·5 | 54 3·3 |
| 2 | 12 3 49·4 | 0·76 | 0·0001090 | 14 45·3 | 14 47·3 | 54 8·9 | 54 16·3 |
| 3 | 13 2 53·3 | 0·82 | 0·0002360 | 14 49·9 | 14 53·0 | 54 25·6 | 54 37·0 |
| 4 | 14 1 55·6 | 0·85 | 0·0003634 | 14 56·6 | 15 0·8 | 54 50·1 | 55 5·5 |
| 5 | 15 0 56·1 | 0·86 | 0·0004909 | 15 5·5 | 15 10·7 | 55 22·8 | 55 42·2 |
| 6 | 15 59 54·8 | 0·83 | 0·0006182 | 15 16·6 | 15 23·0 | 56 3·7 | 56 27·2 |
| 7 | 16 58 51·8 | 0·77 | 0·0007453 | 15 29·8 | 15 37·0 | 56 52·1 | 57 18·7 |
| 8 | 17 57 47·0 | 0·68 | 0·0008718 | 15 44·6 | 15 52·4 | 57 46·5 | 58 15·1 |
| 9 | 18 56 40·5 | 0·58 | 0·0009978 | 16 0·2 | 16 7·9 | 58 43·8 | 59 12·1 |
| 10 | 19 55 32·2 | 0·46 | 0·0011231 | 16 15·4 | 16 22·3 | 59 39·3 | 60 4·6 |
| 11 | 20 54 21·9 | 0·32 | 0·0012475 | 16 28·5 | 16 33·9 | 60 27·5 | 60 47·3 |
| 12 | 21 53 9·8 | 0·19 | 0·0013709 | 16 38·2 | 16 41·4 | 61 3·1 | 61 14·7 |
| 13 | 22 51 55·7 | S.0·06 | 0·0014932 | 16 43·2 | 16 43·7 | 61 21·5 | 61 23·1 |
| 14 | 23 50 39·8 | N.0·05 | 0·0016146 | 16 42·7 | 16 40·4 | 61 19·7 | 61 11·3 |
| 15 | 24 49 22·0 | 0·15 | 0·0017348 | 16 36·9 | 16 32·3 | 60 58·4 | 60 41·3 |
| 16 | 25 48 2·1 | 0·23 | 0·0018539 | 16 26·5 | 16 20·1 | 60 20·3 | 59 56·6 |
| 17 | 26 46 40·2 | 0·28 | 0·0019718 | 16 13·0 | 16 5·5 | 59 30·5 | 59 3·2 |
| 18 | 27 45 16·1 | 0·30 | 0·0020887 | 15 57·8 | 15 50·0 | 58 34·9 | 58 6·3 |
| 19 | 28 43 49·9 | 0·29 | 0·0022045 | 15 42·4 | 15 35·0 | 57 38·3 | 57 11·3 |
| 20 | 29 42 21·5 | 0·24 | 0·0023194 | 15 27·9 | 15 21·3 | 56 45·3 | 56 21·0 |
| 21 | 30 40 50·8 | 0·17 | 0·0024335 | 15 15·2 | 15 9·6 | 55 58·4 | 55 37·8 |
| 22 | 31 39 18·0 | N.0·08 | 0·0025468 | 15 4·5 | 14 59·9 | 55 19·2 | 55 2·5 |
| 23 | 32 37 42·9 | S.0·03 | 0·0026596 | 14 56·0 | 14 52·5 | 54 47·9 | 54 35·1 |
| 24 | 33 36 5·8 | 0·15 | 0·0027718 | 14 49·6 | 14 47·1 | 54 24·4 | 54 15·4 |
| 25 | 34 34 26·5 | 0·29 | 0·0028836 | 14 45·2 | 14 43·6 | 54 8·3 | 54 2·7 |
| 26 | 35 32 45·2 | 0·42 | 0·0029950 | 14 42·5 | 14 41·9 | 53 58·7 | 53 56·3 |
| 27 | 36 31 2·0 | 0·55 | 0·0031060 | 14 41·5 | 14 41·7 | 53 55·0 | 53 55·5 |
| 28 | 37 29 16·9 | 0·65 | 0·0032166 | 14 42·2 | 14 43·1 | 53 57·4 | 54 0·8 |
| 29 | 38 27 30·1 | 0·74 | 0·0033268 | 14 44·3 | 14 45·9 | 54 5·3 | 54 11·0 |
| 30 | 39 25 41·7 | 0·80 | 0·0034365 | 14 47·8 | 14 50·2 | 54 18·1 | 54 26·7 |
| 31 | 40 23 51·6 | S.0·84 | 0·0035456 | 14 52·8 | 14 55·9 | 54 36·5 | 54 47·9 |

## MEAN TIME.

| Day of the Week. | Day of the Month. | THE MOON'S Longitude. Noon. | Longitude. Midnight. | Latitude. Noon. | Latitude. Midnight. | Age. Noon. | Meridian Passage. |
|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | ° ′ ″ | ° ′ ″ | ° ′ ″ | d | h m |
| Mon. | 1 | 217 7 37 ·4 | 223 3 7 ·9 | S. 3 32 27 ·8 | S. 3 55 25 ·8 | 16 ·9 | 14 2 ·4 |
| Tues. | 2 | 228 59 35 ·8 | 234 57 21 ·5 | 4 15 54 ·3 | 4 33 40 ·5 | 17 ·9 | 14 48 ·4 |
| Wed. | 3 | 240 56 46 ·2 | 246 58 13 ·0 | 4 48 31 ·4 | 5 0 16 ·4 | 18 ·9 | 15 37 ·7 |
| Thur. | 4 | 253 2 7 ·0 | 259 8 53 ·8 | 5 8 45 ·4 | 5 13 48 ·9 | 19 ·9 | 16 30 ·1 |
| Frid. | 5 | 265 19 0 ·7 | 271 32 55 ·3 | 5 15 18 ·2 | 5 13 7 ·2 | 20 ·9 | 17 24 ·6 |
| Sat. | 6 | 277 51 5 ·8 | 284 14 0 ·3 | 5 7 9 ·4 | 4 57 21 ·2 | 21 ·9 | 18 19 ·9 |
| *Sun.* | 7 | 290 42 5 ·6 | 297 15 47 ·4 | 4 43 39 ·7 | 4 26 5 ·8 | 22 ·9 | 19 14 ·6 |
| Mon. | 8 | 303 55 28 ·0 | 310 41 25 ·9 | 4 4 41 ·8 | 3 39 34 ·8 | 23 ·9 | 20 7 ·8 |
| Tues. | 9 | 317 33 54 ·7 | 324 33 0 ·4 | 3 10 54 ·7 | 2 38 58 ·1 | 24 ·9 | 20 59 ·4 |
| Wed. | 10 | 331 38 42 ·2 | 338 50 50 ·3 | 2 4 5 ·9 | 1 26 45 ·2 | 25 ·9 | 21 49 ·8 |
| Thur. | 11 | 346 9 3 ·3 | 353 32 49 ·5 | S. 0 47 28 ·8 | S. 0 6 56 ·9 | 26 ·9 | 22 40 ·1 |
| Frid. | 12 | 1 1 25 ·5 | 8 33 58 ·4 | N. 0 34 7 ·1 | N. 1 14 54 ·9 | 27 ·9 | 23 31 ·6 |
| Sat. | 13 | 16 9 23 ·7 | 23 46 30 ·3 | 1 54 36 ·6 | 2 32 22 ·2 | 28 ·9 | ☌ |
| *Sun.* | 14 | 31 24 2 ·0 | 39 0 40 ·1 | 3 7 24 ·5 | 3 39 0 ·7 | 0 ·5 | 0 25 ·5 |
| Mon. | 15 | 46 35 7 ·5 | 54 6 12 ·1 | 4 6 34 ·7 | 4 29 38 ·4 | 1 ·5 | 1 22 ·9 |
| Tues. | 16 | 61 32 49 ·0 | 68 54 2 ·8 | 4 47 52 ·8 | 5 1 6 ·9 | 2 ·5 | 2 23 ·6 |
| Wed. | 17 | 76 9 9 ·9 | 83 17 39 ·0 | 5 9 18 ·5 | 5 12 32 ·4 | 3 ·5 | 3 26 ·4 |
| Thur. | 18 | 90 19 10 ·7 | 97 13 36 ·5 | 5 10 59 ·7 | 5 4 55 ·6 | 4 ·5 | 4 28 ·8 |
| Frid. | 19 | 104 0 59 ·0 | 110 41 28 ·1 | 4 54 39 ·2 | 4 40 31 ·2 | 5 ·5 | 5 28 ·3 |
| Sat. | 20 | 117 15 23 ·1 | 123 43 7 ·0 | 4 22 54 ·9 | 4 2 12 ·2 | 6 ·5 | 6 23 ·1 |
| *Sun.* | 21 | 130 5 8 ·5 | 136 21 58 ·2 | 3 38 47 ·1 | 3 13 1 ·5 | 7 ·5 | 7 12 ·8 |
| Mon. | 22 | 142 34 9 ·9 | 148 42 16 ·7 | 2 45 18 ·4 | 2 15 58 ·5 | 8 ·5 | 7 58 ·2 |
| Tues. | 23 | 154 46 52 ·9 | 160 48 31 ·5 | 1 45 23 ·3 | 1 13 53 ·1 | 9 ·5 | 8 40 ·2 |
| Wed. | 24 | 166 47 44 ·7 | 172 45 2 ·6 | N. 0 41 48 ·4 | N. 0 9 27 ·3 | 10 ·5 | 9 20 ·1 |
| Thur. | 25 | 178 40 53 ·5 | 184 35 44 ·0 | S. 0 22 49 ·5 | S. 0 54 44 ·0 | 11 ·5 | 9 59 ·0 |
| Frid. | 26 | 190 29 58 ·2 | 196 23 57 ·8 | 1 25 57 ·0 | 1 56 11 ·4 | 12 ·5 | 10 38 ·1 |
| Sat. | 27 | 202 18 2 ·4 | 208 12 30 ·2 | 2 25 8 ·5 | 2 52 31 ·7 | 13 ·5 | 11 18 ·3 |
| *Sun.* | 28 | 214 7 36 ·1 | 220 3 35 ·6 | 3 18 3 ·7 | 3 41 28 ·8 | 14 ·5 | 12 0 ·6 |
| Mon. | 29 | 226 0 41 ·1 | 231 59 5 ·4 | 4 2 31 ·1 | 4 20 57 ·8 | 15 ·5 | 12 45 ·8 |
| Tues. | 30 | 237 58 59 ·5 | 244 0 35 ·5 | 4 36 34 ·8 | 4 49 11 ·1 | 16 ·5 | 13 34 ·3 |
| Wed. | 31 | 250 4 5 ·4 | 256 9 41 ·4 | S. 4 58 36 ·1 | S. 5 4 40 ·6 | 17 ·5 | 14 25 ·8 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour | Right Ascension. | Declination. | Diff. Dec. for $10^m$. | Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. |
|---|---|---|---|---|---|---|---|
| | *MONDAY* 1. | | | | *WEDNESDAY* 3. | | |
| | h m s | ° ′ ″ | ″ | | h m s | ° ′ ″ | ″ |
| 0 | 14 14 15 ·81 | S. 17 14 55 ·1 | 116 ·82 | 0 | 15 50 49 ·61 | S. 25 4 12 ·2 | 74 ·17 |
| 1 | 14 16 9 ·82 | 17 26 36 ·0 | 116 ·17 | 1 | 15 52 57 ·82 | 25 11 37 ·2 | 73 ·05 |
| 2 | 14 18 4 ·08 | 17 38 13 ·0 | 115 ·47 | 2 | 15 55 6 ·35 | 25 18 55 ·5 | 71 ·92 |
| 3 | 14 19 58 ·59 | 17 49 45 ·8 | 114 ·78 | 3 | 15 57 15 ·18 | 25 26 7 ·0 | 70 ·77 |
| 4 | 14 21 53 ·36 | 18 1 14 ·5 | 114 ·10 | 4 | 15 59 24 ·33 | 25 33 11 ·6 | 69 ·62 |
| 5 | 14 23 48 ·40 | 18 12 39 ·1 | 113 ·38 | 5 | 16 1 33 ·79 | 25 40 9 ·3 | 68 ·47 |
| 6 | 14 25 43 ·70 | 18 23 59 ·4 | 112 ·68 | 6 | 16 3 43 ·56 | 25 47 0 ·1 | 67 ·28 |
| 7 | 14 27 39 ·26 | 18 35 15 ·5 | 111 ·95 | 7 | 16 5 53 ·63 | 25 53 43 ·8 | 66 ·12 |
| 8 | 14 29 35 ·09 | 18 46 27 ·2 | 111 ·22 | 8 | 16 8 4 ·02 | 26 0 20 ·5 | 64 ·92 |
| 9 | 14 31 31 ·20 | 18 57 34 ·5 | 110 ·47 | 9 | 16 10 14 ·71 | 26 6 50 ·0 | 63 ·72 |
| 10 | 14 33 27 ·58 | 19 8 37 ·3 | 109 ·73 | 10 | 16 12 25 ·70 | 26 13 12 ·3 | 62 ·50 |
| 11 | 14 35 24 ·23 | 19 19 35 ·7 | 108 ·97 | 11 | 16 14 37 ·00 | 26 19 27 ·3 | 61 ·30 |
| 12 | 14 37 21 ·16 | 19 30 29 ·5 | 108 ·20 | 12 | 16 16 48 ·60 | 26 25 35 ·1 | 60 ·07 |
| 13 | 14 39 18 ·37 | 19 41 18 ·7 | 107 ·42 | 13 | 16 19 0 ·50 | 26 31 35 ·5 | 58 ·83 |
| 14 | 14 41 15 ·86 | 19 52 3 ·2 | 106 ·63 | 14 | 16 21 12 ·70 | 26 37 28 ·5 | 57 ·58 |
| 15 | 14 43 13 ·63 | 20 2 43 ·0 | 105 ·83 | 15 | 16 23 25 ·19 | 26 43 14 ·0 | 56 ·33 |
| 16 | 14 45 11 ·69 | 20 13 18 ·0 | 105 ·03 | 16 | 16 25 37 ·98 | 26 48 52 ·0 | 55 ·07 |
| 17 | 14 47 10 ·04 | 20 23 48 ·2 | 104 ·22 | 17 | 16 27 51 ·06 | 26 54 22 ·4 | 53 ·80 |
| 18 | 14 49 8 ·68 | 20 34 13 ·5 | 103 ·38 | 18 | 16 30 4 ·42 | 26 59 45 ·2 | 52 ·52 |
| 19 | 14 51 7 ·61 | 20 44 33 ·8 | 102 ·57 | 19 | 16 32 18 ·08 | 27 5 0 ·3 | 51 ·23 |
| 20 | 14 53 6 ·84 | 20 54 49 ·2 | 101 ·70 | 20 | 16 34 32 ·02 | 27 10 7 ·7 | 49 ·92 |
| 21 | 14 55 6 ·36 | 21 4 59 ·4 | 100 ·87 | 21 | 16 36 46 ·24 | 27 15 7 ·2 | 48 ·63 |
| 22 | 14 57 6 ·17 | 21 15 4 ·6 | 100 ·00 | 22 | 16 39 0 ·74 | 27 19 59 ·0 | 47 ·30 |
| 23 | 14 59 6 ·29 | S. 21 25 4 ·6 | 99 ·12 | 23 | 16 41 15 ·52 | S. 27 24 42 ·8 | 45 ·98 |
| | *TUESDAY* 2. | | | | *THURSDAY* 4. | | |
| 0 | 15 1 6 ·71 | S. 21 34 59 ·3 | 98 ·25 | 0 | 16 43 30 ·57 | S. 27 29 18 ·7 | 44 ·65 |
| 1 | 15 3 7 ·43 | 21 44 48 ·8 | 97 ·35 | 1 | 16 45 45 ·89 | 27 33 46 ·6 | 43 ·32 |
| 2 | 15 5 8 ·45 | 21 54 32 ·9 | 96 ·45 | 2 | 16 48 1 ·48 | 27 38 6 ·5 | 41 ·95 |
| 3 | 15 7 9 ·78 | 22 4 11 ·6 | 95 ·55 | 3 | 16 50 17 ·33 | 27 42 18 ·2 | 40 ·60 |
| 4 | 15 9 11 ·41 | 22 13 44 ·9 | 94 ·62 | 4 | 16 52 33 ·44 | 27 46 21 ·8 | 39 ·23 |
| 5 | 15 11 13 ·35 | 22 23 12 ·6 | 93 ·68 | 5 | 16 54 49 ·81 | 27 50 17 ·2 | 37 ·87 |
| 6 | 15 13 15 ·60 | 22 32 34 ·7 | 92 ·75 | 6 | 16 57 6 ·44 | 27 54 4 ·4 | 36 ·48 |
| 7 | 15 15 18 ·16 | 22 41 51 ·2 | 91 ·80 | 7 | 16 59 23 ·31 | 27 57 43 ·3 | 35 ·08 |
| 8 | 15 17 21 ·03 | 22 51 2 ·0 | 90 ·85 | 8 | 17 1 40 ·43 | 28 1 13 ·8 | 33 ·70 |
| 9 | 15 19 24 ·21 | 23 0 7 ·1 | 89 ·87 | 9 | 17 3 57 ·79 | 28 4 36 ·0 | 32 ·28 |
| 10 | 15 21 27 ·70 | 23 9 6 ·3 | 88 ·90 | 10 | 17 6 15 ·39 | 28 7 49 ·7 | 30 ·88 |
| 11 | 15 23 31 ·50 | 23 17 59 ·7 | 87 ·90 | 11 | 17 8 33 ·23 | 28 10 55 ·0 | 29 ·45 |
| 12 | 15 25 35 ·62 | 23 26 47 ·1 | 86 ·90 | 12 | 17 10 51 ·29 | 28 13 51 ·7 | 28 ·03 |
| 13 | 15 27 40 ·05 | 23 35 28 ·5 | 85 ·90 | 13 | 17 13 9 ·58 | 28 16 39 ·9 | 26 ·58 |
| 14 | 15 29 44 ·80 | 23 44 3 ·9 | 84 ·88 | 14 | 17 15 28 ·09 | 28 19 19 ·4 | 25 ·17 |
| 15 | 15 31 49 ·86 | 23 52 33 ·2 | 83 ·85 | 15 | 17 17 46 ·82 | 28 21 50 ·4 | 23 ·70 |
| 16 | 15 33 55 ·24 | 24 0 56 ·3 | 82 ·82 | 16 | 17 20 5 ·77 | 28 24 12 ·6 | 22 ·25 |
| 17 | 15 36 0 ·94 | 24 9 13 ·2 | 81 ·77 | 17 | 17 22 24 ·92 | 28 26 26 ·1 | 20 ·80 |
| 18 | 15 38 6 ·94 | 24 17 23 ·8 | 80 ·70 | 18 | 17 24 44 ·28 | 28 28 30 ·9 | 19 ·32 |
| 19 | 15 40 13 ·27 | 24 25 28 ·0 | 79 ·65 | 19 | 17 27 3 ·84 | 28 30 26 ·8 | 17 ·87 |
| 20 | 15 42 19 ·91 | 24 33 25 ·9 | 78 ·57 | 20 | 17 29 23 ·59 | 28 32 14 ·0 | 16 ·37 |
| 21 | 15 44 26 ·86 | 24 41 17 ·3 | 77 ·48 | 21 | 17 31 43 ·53 | 28 33 52 ·2 | 14 ·90 |
| 22 | 15 46 34 ·13 | 24 49 2 ·2 | 76 ·38 | 22 | 17 34 3 ·65 | 28 35 21 ·6 | 13 ·40 |
| 23 | 15 48 41 ·71 | 24 56 40 ·5 | 75 ·28 | 23 | 17 36 23 ·96 | 28 36 42 ·0 | 11 ·90 |
| 24 | 15 50 49 ·61 | S. 25 4 12 ·2 | | 24 | 17 38 44 ·44 | S. 28 37 53 ·4 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *FRIDAY* 5. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 17 38 44 ·44 | S. 28 37 53 ·4 | 10 ·40 |
| 1 | 17 41 5 ·09 | 28 38 55 ·8 | 8 ·90 |
| 2 | 17 43 25 ·90 | 28 39 49 ·2 | 7 ·40 |
| 3 | 17 45 46 ·87 | 28 40 33 ·6 | 5 ·87 |
| 4 | 17 48 8 ·00 | 28 41 8 ·8 | 4 ·35 |
| 5 | 17 50 29 ·27 | 28 41 34 ·9 | 2 ·82 |
| 6 | 17 52 50 ·69 | 28 41 51 ·8 | 1 ·28 |
| 7 | 17 55 12 ·24 | 28 41 59 ·5 | 0 ·23 |
| 8 | 17 57 33 ·93 | 28 41 58 ·1 | 1 ·80 |
| 9 | 17 59 55 ·74 | 28 41 47 ·3 | 3 ·32 |
| 10 | 18 2 17 ·68 | 28 41 27 ·4 | 4 ·88 |
| 11 | 18 4 39 ·73 | 28 40 58 ·1 | 6 ·43 |
| 12 | 18 7 1 ·89 | 28 40 19 ·5 | 7 ·98 |
| 13 | 18 9 24 ·16 | 28 39 31 ·6 | 9 ·55 |
| 14 | 18 11 46 ·52 | 28 38 34 ·3 | 11 ·12 |
| 15 | 18 14 8 ·98 | 28 37 27 ·6 | 12 ·67 |
| 16 | 18 16 31 ·52 | 28 36 11 ·6 | 14 ·25 |
| 17 | 18 18 54 ·15 | 28 34 46 ·1 | 15 ·80 |
| 18 | 18 21 16 ·85 | 28 33 11 ·3 | 17 ·40 |
| 19 | 18 23 39 ·62 | 28 31 26 ·9 | 18 ·95 |
| 20 | 18 26 2 ·46 | 28 29 33 ·2 | 20 ·53 |
| 21 | 18 28 25 ·35 | 28 27 30 ·0 | 22 ·12 |
| 22 | 18 30 48 ·30 | 28 25 17 ·3 | 23 ·70 |
| 23 | 18 33 11 ·30 | S. 28 22 55 ·1 | 25 ·27 |
| | *SATURDAY* 6. | | |
| 0 | 18 35 34 ·34 | S. 28 20 23 ·5 | 26 ·85 |
| 1 | 18 37 57 ·42 | 28 17 42 ·4 | 28 ·45 |
| 2 | 18 40 20 ·52 | 28 14 51 ·7 | 30 ·02 |
| 3 | 18 42 43 ·65 | 28 11 51 ·6 | 31 ·60 |
| 4 | 18 45 6 ·80 | 28 8 42 ·0 | 33 ·20 |
| 5 | 18 47 29 ·97 | 28 5 22 ·8 | 34 ·78 |
| 6 | 18 49 53 ·14 | 28 1 54 ·1 | 36 ·37 |
| 7 | 18 52 16 ·32 | 27 58 15 ·9 | 37 ·95 |
| 8 | 18 54 39 ·49 | 27 54 28 ·2 | 39 ·53 |
| 9 | 18 57 2 ·65 | 27 50 31 ·0 | 41 ·12 |
| 10 | 18 59 25 ·81 | 27 46 24 ·3 | 42 ·72 |
| 11 | 19 1 48 ·94 | 27 42 8 ·0 | 44 ·28 |
| 12 | 19 4 12 ·05 | 27 37 42 ·3 | 45 ·88 |
| 13 | 19 6 35 ·13 | 27 33 7 ·0 | 47 ·45 |
| 14 | 19 8 58 ·17 | 27 28 22 ·3 | 49 ·03 |
| 15 | 19 11 21 ·18 | 27 23 28 ·1 | 50 ·62 |
| 16 | 19 13 44 ·14 | 27 18 24 ·4 | 52 ·20 |
| 17 | 19 16 7 ·05 | 27 13 11 ·2 | 53 ·77 |
| 18 | 19 18 29 ·91 | 27 7 48 ·6 | 55 ·33 |
| 19 | 19 20 52 ·71 | 27 2 16 ·6 | 56 ·90 |
| 20 | 19 23 15 ·45 | 26 56 35 ·2 | 58 ·48 |
| 21 | 19 25 38 ·12 | 26 50 44 ·3 | 60 ·03 |
| 22 | 19 28 0 ·72 | 26 44 44 ·1 | 61 ·60 |
| 23 | 19 30 23 ·24 | 26 38 34 ·5 | 63 ·15 |
| 24 | 19 32 45 ·68 | S. 26 32 15 ·6 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SUNDAY* 7. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 19 32 45 ·68 | S. 26 32 15 ·6 | 64 ·70 |
| 1 | 19 35 8 ·04 | 26 25 47 ·4 | 66 ·25 |
| 2 | 19 37 30 ·30 | 26 19 9 ·9 | 67 ·80 |
| 3 | 19 39 52 ·47 | 26 12 23 ·1 | 69 ·35 |
| 4 | 19 42 14 ·55 | 26 5 27 ·0 | 70 ·87 |
| 5 | 19 44 36 ·52 | 25 58 21 ·8 | 72 ·42 |
| 6 | 19 46 58 ·39 | 25 51 7 ·3 | 73 ·95 |
| 7 | 19 49 20 ·15 | 25 43 43 ·6 | 75 ·47 |
| 8 | 19 51 41 ·80 | 25 36 10 ·8 | 76 ·98 |
| 9 | 19 54 3 ·33 | 25 28 28 ·9 | 78 ·50 |
| 10 | 19 56 24 ·75 | 25 20 37 ·9 | 80 ·02 |
| 11 | 19 58 46 ·04 | 25 12 37 ·8 | 81 ·52 |
| 12 | 20 1 7 ·21 | 25 4 28 ·7 | 83 ·02 |
| 13 | 20 3 28 ·25 | 24 56 10 ·6 | 84 ·52 |
| 14 | 20 5 49 ·15 | 24 47 43 ·5 | 86 ·00 |
| 15 | 20 8 9 ·93 | 24 39 7 ·5 | 87 ·48 |
| 16 | 20 10 30 ·56 | 24 30 22 ·6 | 88 ·97 |
| 17 | 20 12 51 ·06 | 24 21 28 ·8 | 90 ·42 |
| 18 | 20 15 11 ·42 | 24 12 26 ·3 | 91 ·88 |
| 19 | 20 17 31 ·63 | 24 3 15 ·0 | 93 ·35 |
| 20 | 20 19 51 ·70 | 23 53 54 ·9 | 94 ·78 |
| 21 | 20 22 11 ·62 | 23 44 26 ·2 | 96 ·23 |
| 22 | 20 24 31 ·39 | 23 34 48 ·8 | 97 ·67 |
| 23 | 20 26 51 ·00 | S. 23 25 2 ·8 | 99 ·08 |
| | *MONDAY* 8. | | |
| 0 | 20 29 10 ·47 | S. 23 15 8 ·3 | 100 ·50 |
| 1 | 20 31 29 ·78 | 23 5 5 ·3 | 101 ·92 |
| 2 | 20 33 48 ·94 | 22 54 53 ·8 | 103 ·32 |
| 3 | 20 36 7 ·93 | 22 44 33 ·9 | 104 ·72 |
| 4 | 20 38 26 ·77 | 22 34 5 ·6 | 106 ·10 |
| 5 | 20 40 45 ·45 | 22 23 29 ·0 | 107 ·47 |
| 6 | 20 43 3 ·96 | 22 12 44 ·2 | 108 ·85 |
| 7 | 20 45 22 ·32 | 22 1 51 ·1 | 110 ·22 |
| 8 | 20 47 40 ·51 | 21 50 49 ·8 | 111 ·57 |
| 9 | 20 49 58 ·54 | 21 39 40 ·4 | 112 ·90 |
| 10 | 20 52 16 ·41 | 21 28 23 ·0 | 114 ·25 |
| 11 | 20 54 34 ·11 | 21 16 57 ·5 | 115 ·57 |
| 12 | 20 56 51 ·65 | 21 5 24 ·1 | 116 ·90 |
| 13 | 20 59 9 ·02 | 20 53 42 ·7 | 118 ·20 |
| 14 | 21 1 26 ·23 | 20 41 53 ·5 | 119 ·50 |
| 15 | 21 3 43 ·28 | 20 29 56 ·5 | 120 ·78 |
| 16 | 21 6 0 ·16 | 20 17 51 ·8 | 122 ·07 |
| 17 | 21 8 16 ·87 | 20 5 39 ·4 | 123 ·33 |
| 18 | 21 10 33 ·43 | 19 53 19 ·4 | 124 ·58 |
| 19 | 21 12 49 ·82 | 19 40 51 ·9 | 125 ·85 |
| 20 | 21 15 6 ·05 | 19 28 16 ·8 | 127 ·07 |
| 21 | 21 17 22 ·11 | 19 15 34 ·4 | 128 ·30 |
| 22 | 21 19 38 ·02 | 19 2 44 ·6 | 129 ·53 |
| 23 | 21 21 53 ·76 | 18 49 47 ·4 | 130 ·72 |
| 24 | 21 24 9 ·35 | S. 18 36 43 ·1 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 9. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 21 24 9·35 | S. 18 36 43·1 | 131·92 |
| 1 | 21 26 24·78 | 18 23 31·6 | 133·10 |
| 2 | 21 28 40·05 | 18 10 13·0 | 134·27 |
| 3 | 21 30 55·17 | 17 56 47·4 | 135·42 |
| 4 | 21 33 10·14 | 17 43 14·9 | 136·58 |
| 5 | 21 35 24·95 | 17 29 35·4 | 137·72 |
| 6 | 21 37 39·61 | 17 15 49·1 | 138·83 |
| 7 | 21 39 54·13 | 17 1 56·1 | 139·95 |
| 8 | 21 42 8·50 | 16 47 56·4 | 141·07 |
| 9 | 21 44 22·73 | 16 33 50·0 | 142·13 |
| 10 | 21 46 36·81 | 16 19 37·2 | 143·23 |
| 11 | 21 48 50·75 | 16 5 17·8 | 144·28 |
| 12 | 21 51 4·56 | 15 50 52·1 | 145·35 |
| 13 | 21 53 18·22 | 15 36 20·0 | 146·37 |
| 14 | 21 55 31·77 | 15 21 41·8 | 147·42 |
| 15 | 21 57 45·18 | 15 6 57·3 | 148·43 |
| 16 | 21 59 58·46 | 14 52 6·7 | 149·42 |
| 17 | 22 2 11·61 | 14 37 10·2 | 150·42 |
| 18 | 22 4 24·65 | 14 22 7·7 | 151·40 |
| 19 | 22 6 37·56 | 14 6 59·3 | 152·35 |
| 20 | 22 8 50·36 | 13 51 45·2 | 153·32 |
| 21 | 22 11 3·05 | 13 36 25·3 | 154·23 |
| 22 | 22 13 15·62 | 13 20 59·9 | 155·17 |
| 23 | 22 15 28·09 | S. 13 5 28·9 | 156·07 |
| | *WEDNESDAY* 10. | | |
| 0 | 22 17 40·46 | S. 12 49 52·5 | 156·97 |
| 1 | 22 19 52·73 | 12 34 10·7 | 157·83 |
| 2 | 22 22 4·90 | 12 18 23·7 | 158·72 |
| 3 | 22 24 16·98 | 12 2 31·4 | 159·55 |
| 4 | 22 26 28·97 | 11 46 34·1 | 160·40 |
| 5 | 22 28 40·87 | 11 30 31·7 | 161·23 |
| 6 | 22 30 52·69 | 11 14 24·3 | 162·02 |
| 7 | 22 33 4·43 | 10 58 12·2 | 162·83 |
| 8 | 22 35 16·10 | 10 41 55·2 | 163·60 |
| 9 | 22 37 27·69 | 10 25 33·6 | 164·37 |
| 10 | 22 39 39·22 | 10 9 7·4 | 165·10 |
| 11 | 22 41 50·68 | 9 52 36·8 | 165·85 |
| 12 | 22 44 2·09 | 9 36 1·7 | 166·57 |
| 13 | 22 46 13·44 | 9 19 22·3 | 167·27 |
| 14 | 22 48 24·74 | 9 2 38·7 | 167·95 |
| 15 | 22 50 35·99 | 8 45 51·0 | 168·63 |
| 16 | 22 52 47·20 | 8 28 59·2 | 169·27 |
| 17 | 22 54 58·37 | 8 12 3·6 | 169·93 |
| 18 | 22 57 9·51 | 7 55 4·1 | 170·53 |
| 19 | 22 59 20·62 | 7 38 0·9 | 171·15 |
| 20 | 23 1 31·70 | 7 20 54·0 | 171·72 |
| 21 | 23 3 42·76 | 7 3 43·7 | 172·30 |
| 22 | 23 5 53·81 | 6 46 29·9 | 172·85 |
| 23 | 23 8 4·84 | 6 29 12·8 | 173·38 |
| 24 | 23 10 15·87 | S. 6 11 52·5 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *THURSDAY* 11. | | |
| | h m s | ° ′ ″ | |
| 0 | 23 10 15·87 | S. 6 11 52·5 | 17 |
| 1 | 23 12 26·90 | 5 54 29·1 | 17 |
| 2 | 23 14 37·93 | 5 37 2·7 | 17 |
| 3 | 23 16 48·97 | 5 19 33·3 | 17 |
| 4 | 23 19 0·02 | 5 2 1·2 | 17 |
| 5 | 23 21 11·08 | 4 44 26·4 | 17 |
| 6 | 23 23 22·17 | 4 26 48·9 | 17 |
| 7 | 23 25 33·29 | 4 9 9·0 | 17 |
| 8 | 23 27 44·43 | 3 51 26·7 | 17 |
| 9 | 23 29 55·61 | 3 33 42·1 | 17 |
| 10 | 23 32 6·83 | 3 15 55·3 | 17 |
| 11 | 23 34 18·10 | 2 58 6·5 | 17 |
| 12 | 23 36 29·42 | 2 40 15·7 | 17 |
| 13 | 23 38 40·80 | 2 22 23·1 | 17 |
| 14 | 23 40 52·23 | 2 4 28·7 | 17 |
| 15 | 23 43 3·73 | 1 46 32·7 | 17 |
| 16 | 23 45 15·30 | 1 28 35·2 | 17 |
| 17 | 23 47 26·95 | 1 10 36·3 | 18 |
| 18 | 23 49 38·68 | 0 52 36·1 | 18 |
| 19 | 23 51 50·50 | 0 34 34·8 | 18 |
| 20 | 23 54 2·40 | S. 0 16 32·4 | 18 |
| 21 | 23 56 14·41 | N. 0 1 30·9 | 18 |
| 22 | 23 58 26·51 | 0 19 35·0 | 18 |
| 23 | 0 0 38·73 | N. 0 37 39·8 | 18 |
| | *FRIDAY* 12. | | |
| 0 | 0 2 51·05 | N. 0 55 45·2 | 18 |
| 1 | 0 5 3·50 | 1 13 51·0 | 18 |
| 2 | 0 7 16·06 | 1 31 57·2 | 18 |
| 3 | 0 9 28·76 | 1 50 3·6 | 18 |
| 4 | 0 11 41·59 | 2 8 10·0 | 18 |
| 5 | 0 13 54·55 | 2 26 16·5 | 18 |
| 6 | 0 16 7·66 | 2 44 22·7 | 18 |
| 7 | 0 18 20·91 | 3 2 28·7 | 18 |
| 8 | 0 20 34·32 | 3 20 34·3 | 18 |
| 9 | 0 22 47·89 | 3 38 39·3 | 18 |
| 10 | 0 25 1·62 | 3 56 43·7 | 18 |
| 11 | 0 27 15·51 | 4 14 47·3 | 18 |
| 12 | 0 29 29·58 | 4 32 50·0 | 18 |
| 13 | 0 31 43·83 | 4 50 51·7 | 18 |
| 14 | 0 33 58·25 | 5 8 52·2 | 17 |
| 15 | 0 36 12·87 | 5 26 51·4 | 17 |
| 16 | 0 38 27·67 | 5 44 49·1 | 17 |
| 17 | 0 40 42·68 | 6 2 45·3 | 17 |
| 18 | 0 42 57·88 | 6 20 39·9 | 17 |
| 19 | 0 45 13·29 | 6 38 32·6 | 17 |
| 20 | 0 47 28·92 | 6 56 23·4 | 17 |
| 21 | 0 49 44·76 | 7 14 12·1 | 17 |
| 22 | 0 52 0·82 | 7 31 58·6 | 17 |
| 23 | 0 54 17·11 | 7 49 42·8 | 17 |
| 24 | 0 56 33·63 | N. 8 7 24·5 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SATURDAY* 13. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 0 56 33 ·63 | N. 8 7 24 ·5 | 176 ·52 |
| 1 | 0 58 50 ·38 | 8 25 3 ·6 | 176 ·07 |
| 2 | 1 1 7 ·37 | 8 42 40 ·0 | 175 ·58 |
| 3 | 1 3 24 ·61 | 9 0 13 ·5 | 175 ·08 |
| 4 | 1 5 42 ·09 | 9 17 44 ·0 | 174 ·57 |
| 5 | 1 7 59 ·83 | 9 35 11 ·4 | 174 ·02 |
| 6 | 1 10 17 ·82 | 9 52 35 ·5 | 173 ·45 |
| 7 | 1 12 36 ·07 | 10 9 56 ·2 | 172 ·85 |
| 8 | 1 14 54 ·59 | 10 27 13 ·3 | 172 ·25 |
| 9 | 1 17 13 ·37 | 10 44 26 ·8 | 171 ·62 |
| 10 | 1 19 32 ·42 | 11 1 36 ·5 | 170 ·97 |
| 11 | 1 21 51 ·76 | 11 18 42 ·3 | 170 ·28 |
| 12 | 1 24 11 ·37 | 11 35 44 ·0 | 169 ·58 |
| 13 | 1 26 31 ·27 | 11 52 41 ·5 | 168 ·85 |
| 14 | 1 28 51 ·45 | 12 9 34 ·6 | 168 ·12 |
| 15 | 1 31 11 ·92 | 12 26 23 ·3 | 167 ·35 |
| 16 | 1 33 32 ·69 | 12 43 7 ·4 | 166 ·55 |
| 17 | 1 35 53 ·76 | 12 59 46 ·7 | 165 ·73 |
| 18 | 1 38 15 ·12 | 13 16 21 ·1 | 164 ·90 |
| 19 | 1 40 36 ·79 | 13 32 50 ·5 | 164 ·03 |
| 20 | 1 42 58 ·77 | 13 49 14 ·7 | 163 ·15 |
| 21 | 1 45 21 ·05 | 14 5 33 ·6 | 162 ·27 |
| 22 | 1 47 43 ·64 | 14 21 47 ·2 | 161 ·32 |
| 23 | 1 50 6 ·55 | N. 14 37 55 ·1 | 160 ·38 |
| | *SUNDAY* 14. | | |
| 0 | 1 52 29 ·78 | N. 14 53 57 ·4 | 159 ·40 |
| 1 | 1 54 53 ·33 | 15 9 53 ·8 | 158 ·42 |
| 2 | 1 57 17 ·20 | 15 25 44 ·3 | 157 ·40 |
| 3 | 1 59 41 ·39 | 15 41 28 ·7 | 156 ·35 |
| 4 | 2 2 5 ·90 | 15 57 6 ·8 | 155 ·30 |
| 5 | 2 4 30 ·75 | 16 12 38 ·6 | 154 ·22 |
| 6 | 2 6 55 ·92 | 16 28 3 ·9 | 153 ·12 |
| 7 | 2 9 21 ·43 | 16 43 22 ·6 | 151 ·98 |
| 8 | 2 11 47 ·26 | 16 58 34 ·5 | 150 ·85 |
| 9 | 2 14 13 ·43 | 17 13 39 ·6 | 149 ·67 |
| 10 | 2 16 39 ·93 | 17 28 37 ·6 | 148 ·48 |
| 11 | 2 19 6 ·76 | 17 43 28 ·5 | 147 ·27 |
| 12 | 2 21 33 ·93 | 17 58 12 ·1 | 146 ·03 |
| 13 | 2 24 1 ·44 | 18 12 48 ·3 | 144 ·80 |
| 14 | 2 26 29 ·28 | 18 27 17 ·1 | 143 ·50 |
| 15 | 2 28 57 ·46 | 18 41 38 ·1 | 142 ·22 |
| 16 | 2 31 25 ·97 | 18 55 51 ·4 | 140 ·90 |
| 17 | 2 33 54 ·82 | 19 9 56 ·8 | 139 ·57 |
| 18 | 2 36 24 ·01 | 19 23 54 ·2 | 138 ·22 |
| 19 | 2 38 53 ·53 | 19 37 43 ·5 | 136 ·82 |
| 20 | 2 41 23 ·38 | 19 51 24 ·4 | 135 ·43 |
| 21 | 2 43 53 ·57 | 20 4 57 ·0 | 134 ·02 |
| 22 | 2 46 24 ·08 | 20 18 21 ·1 | 132 ·58 |
| 23 | 2 48 54 ·93 | 20 31 36 ·6 | 131 ·13 |
| 24 | 2 51 26 ·11 | N. 20 44 43 ·4 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *MONDAY* 15. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 2 51 26 ·11 | N. 20 44 43 ·4 | 129 ·65 |
| 1 | 2 53 57 ·62 | 20 57 41 ·3 | 128 ·15 |
| 2 | 2 56 29 ·45 | 21 10 30 ·2 | 126 ·65 |
| 3 | 2 59 1 ·61 | 21 23 10 ·1 | 125 ·12 |
| 4 | 3 1 34 ·08 | 21 35 40 ·8 | 123 ·57 |
| 5 | 3 4 6 ·88 | 21 48 2 ·2 | 122 ·00 |
| 6 | 3 6 39 ·99 | 22 0 14 ·2 | 120 ·42 |
| 7 | 3 9 13 ·41 | 22 12 16 ·7 | 118 ·80 |
| 8 | 3 11 47 ·14 | 22 24 9 ·5 | 117 ·20 |
| 9 | 3 14 21 ·17 | 22 35 52 ·7 | 115 ·55 |
| 10 | 3 16 55 ·51 | 22 47 26 ·0 | 113 ·92 |
| 11 | 3 19 30 ·14 | 22 58 49 ·5 | 112 ·23 |
| 12 | 3 22 5 ·07 | 23 10 2 ·9 | 110 ·55 |
| 13 | 3 24 40 ·29 | 23 21 6 ·2 | 108 ·85 |
| 14 | 3 27 15 ·80 | 23 31 59 ·3 | 107 ·15 |
| 15 | 3 29 51 ·58 | 23 42 42 ·2 | 105 ·40 |
| 16 | 3 32 27 ·64 | 23 53 14 ·6 | 103 ·67 |
| 17 | 3 35 3 ·97 | 24 3 36 ·6 | 101 ·90 |
| 18 | 3 37 40 ·56 | 24 13 48 ·0 | 100 ·13 |
| 19 | 3 40 17 ·41 | 24 23 48 ·8 | 98 ·33 |
| 20 | 3 42 54 ·51 | 24 33 38 ·8 | 96 ·53 |
| 21 | 3 45 31 ·86 | 24 43 18 ·0 | 94 ·73 |
| 22 | 3 48 9 ·45 | 24 52 46 ·4 | 92 ·90 |
| 23 | 3 50 47 ·27 | N. 25 2 3 ·8 | 91 ·07 |
| | *TUESDAY* 16. | | |
| 0 | 3 53 25 ·32 | N. 25 11 10 ·2 | 89 ·22 |
| 1 | 3 56 3 ·59 | 25 20 5 ·5 | 87 ·33 |
| 2 | 3 58 42 ·07 | 25 28 49 ·5 | 85 ·48 |
| 3 | 4 1 20 ·76 | 25 37 22 ·4 | 83 ·58 |
| 4 | 4 3 59 ·65 | 25 45 43 ·9 | 81 ·70 |
| 5 | 4 6 38 ·72 | 25 53 54 ·1 | 79 ·80 |
| 6 | 4 9 17 ·98 | 26 1 52 ·9 | 77 ·88 |
| 7 | 4 11 57 ·41 | 26 9 40 ·2 | 75 ·95 |
| 8 | 4 14 37 ·00 | 26 17 15 ·9 | 74 ·03 |
| 9 | 4 17 16 ·76 | 26 24 40 ·1 | 72 ·10 |
| 10 | 4 19 56 ·66 | 26 31 52 ·7 | 70 ·13 |
| 11 | 4 22 36 ·70 | 26 38 53 ·5 | 68 ·20 |
| 12 | 4 25 16 ·87 | 26 45 42 ·7 | 66 ·23 |
| 13 | 4 27 57 ·17 | 26 52 20 ·1 | 64 ·27 |
| 14 | 4 30 37 ·58 | 26 58 45 ·7 | 62 ·28 |
| 15 | 4 33 18 ·09 | 27 4 59 ·4 | 60 ·32 |
| 16 | 4 35 58 ·70 | 27 11 1 ·3 | 58 ·33 |
| 17 | 4 38 39 ·38 | 27 16 51 ·3 | 56 ·35 |
| 18 | 4 41 20 ·15 | 27 22 29 ·4 | 54 ·35 |
| 19 | 4 44 0 ·98 | 27 27 55 ·5 | 52 ·37 |
| 20 | 4 46 41 ·86 | 27 33 9 ·7 | 50 ·35 |
| 21 | 4 49 22 ·79 | 27 38 11 ·8 | 48 ·37 |
| 22 | 4 52 3 ·76 | 27 43 2 ·0 | 46 ·37 |
| 23 | 4 54 44 ·75 | 27 47 40 ·2 | 44 ·35 |
| 24 | 4 57 25 ·75 | N. 27 52 6 ·3 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *WEDNESDAY* 17. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 4 57 25·75 | N.27 52 6·3 | 42·35 |
| 1 | 5 0 6·76 | 27 56 20·4 | 40·33 |
| 2 | 5 2 47·76 | 28 0 22·4 | 38·33 |
| 3 | 5 5 28·75 | 28 4 12·4 | 36·33 |
| 4 | 5 8 9·71 | 28 7 50·4 | 34·32 |
| 5 | 5 10 50·63 | 28 11 16·3 | 32·30 |
| 6 | 5 13 31·50 | 28 14 30·1 | 30·32 |
| 7 | 5 16 12·32 | 28 17 32·0 | 28·30 |
| 8 | 5 18 53·06 | 28 20 21·8 | 26·32 |
| 9 | 5 21 33·73 | 28 22 59·7 | 24·32 |
| 10 | 5 24 14·30 | 28 25 25·6 | 22·30 |
| 11 | 5 26 54·78 | 28 27 39·4 | 20·33 |
| 12 | 5 29 35·14 | 28 29 41·4 | 18·33 |
| 13 | 5 32 15·38 | 28 31 31·4 | 16·37 |
| 14 | 5 34 55·49 | 28 33 9·6 | 14·37 |
| 15 | 5 37 35·46 | 28 34 35·8 | 12·42 |
| 16 | 5 40 15·28 | 28 35 50·3 | 10·43 |
| 17 | 5 42 54·93 | 28 36 52·9 | 8·48 |
| 18 | 5 45 34·40 | 28 37 43·8 | 6·53 |
| 19 | 5 48 13·70 | 28 38 23·0 | 4·57 |
| 20 | 5 50 52·80 | 28 38 50·4 | 2·62 |
| 21 | 5 53 31·69 | 28 39 6·3 | 0·70 |
| 22 | 5 56 10·38 | 28 39 10·5 | 1·22 |
| 23 | 5 58 48·83 | N.28 39 3·2 | 3·13 |
| | *THURSDAY* 18. | | |
| 0 | 6 1 27·06 | N.28 38 44·4 | 5·05 |
| 1 | 6 4 5·04 | 28 38 14·1 | 6·93 |
| 2 | 6 6 42·78 | 28 37 32·5 | 8·83 |
| 3 | 6 9 20·25 | 28 36 39·5 | 10·72 |
| 4 | 6 11 57·45 | 28 35 35·2 | 12·58 |
| 5 | 6 14 34·37 | 28 34 19·7 | 14·43 |
| 6 | 6 17 11·01 | 28 32 53·1 | 16·28 |
| 7 | 6 19 47·35 | 28 31 15·4 | 18·13 |
| 8 | 6 22 23·39 | 28 29 26·6 | 19·95 |
| 9 | 6 24 59·12 | 28 27 26·9 | 21·77 |
| 10 | 6 27 34·52 | 28 25 16·3 | 23·57 |
| 11 | 6 30 9·60 | 28 22 54·9 | 25·37 |
| 12 | 6 32 44·34 | 28 20 22·7 | 27·13 |
| 13 | 6 35 18·74 | 28 17 39·9 | 28·92 |
| 14 | 6 37 52·79 | 28 14 46·4 | 30·67 |
| 15 | 6 40 26·48 | 28 11 42·4 | 32·40 |
| 16 | 6 42 59·80 | 28 8 28·0 | 34·12 |
| 17 | 6 45 32·76 | 28 5 3·3 | 35·85 |
| 18 | 6 48 5·33 | 28 1 28·2 | 37·55 |
| 19 | 6 50 37·52 | 27 57 42·9 | 39·23 |
| 20 | 6 53 9·32 | 27 53 47·5 | 40·90 |
| 21 | 6 55 40·73 | 27 49 42·1 | 42·57 |
| 22 | 6 58 11·73 | 27 45 26·7 | 44·20 |
| 23 | 7 0 42·32 | 27 41 1·5 | 45·85 |
| 24 | 7 3 12·50 | N.27 36 26·4 | |

| Hour. | Right Ascension. | Declination. | D. f |
|---|---|---|---|
| | *FRIDAY* 19. | | |
| | h m s | ° ′ ″ | |
| 0 | 7 3 12·50 | N.27 36 26·4 | |
| 1 | 7 5 42·25 | 27 31 41·7 | |
| 2 | 7 8 11·58 | 27 26 47·3 | |
| 3 | 7 10 40·49 | 27 21 43·4 | |
| 4 | 7 13 8·96 | 27 16 30·1 | |
| 5 | 7 15 36·99 | 27 11 7·5 | |
| 6 | 7 18 4·59 | 27 5 35·6 | |
| 7 | 7 20 31·74 | 26 59 54·6 | |
| 8 | 7 22 58·44 | 26 54 4·5 | |
| 9 | 7 25 24·69 | 26 48 5·4 | |
| 10 | 7 27 50·49 | 26 41 57·5 | |
| 11 | 7 30 15·83 | 26 35 40·7 | |
| 12 | 7 32 40·71 | 26 29 15·3 | |
| 13 | 7 35 5·13 | 26 22 41·3 | |
| 14 | 7 37 29·08 | 26 15 58·8 | |
| 15 | 7 39 52·57 | 26 9 7·8 | |
| 16 | 7 42 15·58 | 26 2 8·6 | |
| 17 | 7 44 38·13 | 25 55 1·1 | |
| 18 | 7 47 0·20 | 25 47 45·5 | |
| 19 | 7 49 21·80 | 25 40 21·9 | |
| 20 | 7 51 42·92 | 25 32 50·3 | |
| 21 | 7 54 3·56 | 25 25 10·9 | |
| 22 | 7 56 23·73 | 25 17 23·7 | |
| 23 | 7 58 43·42 | N.25 9 28·8 | |
| | *SATURDAY* 20. | | |
| 0 | 8 1 2·63 | N.25 1 26·4 | |
| 1 | 8 3 21·36 | 24 53 16·5 | |
| 2 | 8 5 39·61 | 24 44 59·2 | |
| 3 | 8 7 57·37 | 24 36 34·7 | |
| 4 | 8 10 14·66 | 24 28 2·9 | |
| 5 | 8 12 31·47 | 24 19 24·1 | |
| 6 | 8 14 47·80 | 24 10 38·3 | |
| 7 | 8 17 3·66 | 24 1 45·5 | |
| 8 | 8 19 19·04 | 23 52 45·9 | |
| 9 | 8 21 33·94 | 23 43 39·6 | |
| 10 | 8 23 48·37 | 23 34 26·7 | |
| 11 | 8 26 2·32 | 23 25 7·2 | |
| 12 | 8 28 15·80 | 23 15 41·3 | |
| 13 | 8 30 28·81 | 23 6 9·0 | |
| 14 | 8 32 41·35 | 22 56 30·5 | |
| 15 | 8 34 53·42 | 22 46 45·8 | |
| 16 | 8 37 5·03 | 22 36 55·0 | |
| 17 | 8 39 16·18 | 22 26 58·1 | 1 |
| 18 | 8 41 26·86 | 22 16 55·4 | 1 |
| 19 | 8 43 37·09 | 22 6 46·8 | 1 |
| 20 | 8 45 46·86 | 21 56 32·5 | 1 |
| 21 | 8 47 56·17 | 21 46 12·5 | 1 |
| 22 | 8 50 5·03 | 21 35 46·9 | 1 |
| 23 | 8 52 13·45 | 21 25 15·8 | 1 |
| 24 | 8 54 21·41 | N.21 14 39·3 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|
| *SUNDAY* 21. | | |
| h m s | ° ′ ″ | ″ |
| 8 54 21·41 | N.21 14 39·3 | 106·97 |
| 8 56 28·93 | 21 3 57·5 | 107·85 |
| 8 58 36·01 | 20 53 10·4 | 108·72 |
| 9 0 42·65 | 20 42 18·1 | 109·55 |
| 9 2 48·86 | 20 31 20·8 | 110·38 |
| 9 4 54·63 | 20 20 18·5 | 111·22 |
| 9 6 59·98 | 20 9 11·2 | 112·02 |
| 9 9 4·90 | 19 57 59·1 | 112·80 |
| 9 11 9·40 | 19 46 42·3 | 113·60 |
| 9 13 13·49 | 19 35 20·7 | 114·37 |
| 9 15 17·16 | 19 23 54·5 | 115·10 |
| 9 17 20·41 | 19 12 23·9 | 115·87 |
| 9 19 23·26 | 19 0 48·7 | 116·58 |
| 9 21 25·71 | 18 49 9·2 | 117·30 |
| 9 23 27·76 | 18 37 25·4 | 118·02 |
| 9 25 29·41 | 18 25 37·3 | 118·70 |
| 9 27 30·68 | 18 13 45·1 | 119·38 |
| 9 29 31·55 | 18 1 48·8 | 120·05 |
| 9 31 32·04 | 17 49 48·5 | 120·70 |
| 9 33 32·15 | 17 37 44·3 | 121·35 |
| 9 35 31·89 | 17 25 36·2 | 121·98 |
| 9 37 31·25 | 17 13 24·3 | 122·62 |
| 9 39 30·25 | 17 1 8·6 | 123·22 |
| 9 41 28·88 | N.16 48 49·3 | 123·82 |
| *MONDAY* 22. | | |
| 9 43 27·15 | N.16 36 26·4 | 124·40 |
| 9 45 25·07 | 16 24 0·0 | 124·98 |
| 9 47 22·63 | 16 11 30·1 | 125·55 |
| 9 49 19·85 | 15 58 56·8 | 126·12 |
| 9 51 16·73 | 15 46 20·1 | 126·65 |
| 9 53 13·27 | 15 33 40·2 | 127·17 |
| 9 55 9·48 | 15 20 57·2 | 127·72 |
| 9 57 5·36 | 15 8 10·9 | 128·22 |
| 9 59 0·91 | 14 55 21·6 | 128·72 |
| 10 0 56·15 | 14 42 29·3 | 129·20 |
| 10 2 51·07 | 14 29 34·1 | 129·68 |
| 10 4 45·68 | 14 16 36·0 | 130·17 |
| 10 6 39·98 | 14 3 35·0 | 130·62 |
| 10 8 33·98 | 13 50 31·3 | 131·07 |
| 10 10 27·69 | 13 37 24·9 | 131·52 |
| 10 12 21·11 | 13 24 15·8 | 131·93 |
| 10 14 14·23 | 13 11 4·2 | 132·37 |
| 10 16 7·08 | 12 57 50·0 | 132·77 |
| 10 17 59·64 | 12 44 33·4 | 133·18 |
| 10 19 51·94 | 12 31 14·3 | 133·57 |
| 10 21 43·96 | 12 17 52·9 | 133·95 |
| 10 23 35·72 | 12 4 29·2 | 134·32 |
| 10 25 27·22 | 11 51 3·3 | 134·68 |
| 10 27 18·47 | 11 37 35·2 | 135·05 |
| 10 29 9·46 | N.11 24 4·9 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 23. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 10 29 9·46 | N.11 24 4·9 | 135·38 |
| 1 | 10 31 0·21 | 11 10 32·6 | 135·73 |
| 2 | 10 32 50·71 | 10 56 58·2 | 136·07 |
| 3 | 10 34 40·99 | 10 43 21·8 | 136·37 |
| 4 | 10 36 31·03 | 10 29 43·6 | 136·68 |
| 5 | 10 38 20·84 | 10 16 3·5 | 137·00 |
| 6 | 10 40 10·43 | 10 2 21·5 | 137·28 |
| 7 | 10 41 59·80 | 9 48 37·8 | 137·55 |
| 8 | 10 43 48·96 | 9 34 52·5 | 137·85 |
| 9 | 10 45 37·91 | 9 21 5·4 | 138·10 |
| 10 | 10 47 26·65 | 9 7 16·8 | 138·37 |
| 11 | 10 49 15·20 | 8 53 26·6 | 138·62 |
| 12 | 10 51 3·55 | 8 39 34·9 | 138·85 |
| 13 | 10 52 51·71 | 8 25 41·8 | 139·08 |
| 14 | 10 54 39·69 | 8 11 47·3 | 139·32 |
| 15 | 10 56 27·49 | 7 57 51·4 | 139·53 |
| 16 | 10 58 15·12 | 7 43 54·2 | 139·73 |
| 17 | 11 0 2·57 | 7 29 55·8 | 139·95 |
| 18 | 11 1 49·85 | 7 15 56·1 | 140·13 |
| 19 | 11 3 36·98 | 7 1 55·3 | 140·32 |
| 20 | 11 5 23·94 | 6 47 53·4 | 140·50 |
| 21 | 11 7 10·75 | 6 33 50·4 | 140·67 |
| 22 | 11 8 57·42 | 6 19 46·4 | 140·83 |
| 23 | 11 10 43·94 | N. 6 5 41·4 | 140·98 |
| | *WEDNESDAY* 24. | | |
| 0 | 11 12 30·32 | N. 5 51 35·5 | 141·13 |
| 1 | 11 14 16·56 | 5 37 28·7 | 141·28 |
| 2 | 11 16 2·68 | 5 23 21·0 | 141·40 |
| 3 | 11 17 48·67 | 5 9 12·6 | 141·53 |
| 4 | 11 19 34·54 | 4 55 3·4 | 141·65 |
| 5 | 11 21 20·29 | 4 40 53·5 | 141·77 |
| 6 | 11 23 5·93 | 4 26 42·9 | 141·85 |
| 7 | 11 24 51·46 | 4 12 31·8 | 141·97 |
| 8 | 11 26 36·89 | 3 58 20·0 | 142·03 |
| 9 | 11 28 22·21 | 3 44 7·8 | 142·12 |
| 10 | 11 30 7·45 | 3 29 55·1 | 142·18 |
| 11 | 11 31 52·59 | 3 15 42·0 | 142·25 |
| 12 | 11 33 37·65 | 3 1 28·5 | 142·30 |
| 13 | 11 35 22·63 | 2 47 14·7 | 142·35 |
| 14 | 11 37 7·53 | 2 33 0·6 | 142·40 |
| 15 | 11 38 52·36 | 2 18 46·2 | 142·42 |
| 16 | 11 40 37·13 | 2 4 31·7 | 142·45 |
| 17 | 11 42 21·83 | 1 50 17·0 | 142·48 |
| 18 | 11 44 6·47 | 1 36 2·1 | 142·47 |
| 19 | 11 45 51·06 | 1 21 47·3 | 142·48 |
| 20 | 11 47 35·60 | 1 7 32·4 | 142·48 |
| 21 | 11 49 20·10 | 0 53 17·5 | 142·47 |
| 22 | 11 51 4·55 | 0 39 2·7 | 142·45 |
| 23 | 11 52 48·97 | 0 24 48·0 | 142·43 |
| 24 | 11 54 33·35 | N. 0 10 33·4 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. |
|---|---|---|---|
| | *THURSDAY* 25. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 11 54 33 ·35 | N. 0 10 33 ·4 | 142 ·38 |
| 1 | 11 56 17 ·71 | S. 0 3 40 ·9 | 142 ·35 |
| 2 | 11 58 2 ·04 | 0 17 55 ·0 | 142 ·32 |
| 3 | 11 59 46 ·36 | 0 32 8 ·9 | 142 ·25 |
| 4 | 12 1 30 ·66 | 0 46 22 ·4 | 142 ·18 |
| 5 | 12 3 14 ·95 | 1 0 35 ·5 | 142 ·13 |
| 6 | 12 4 59 ·24 | 1 14 48 ·3 | 142 ·05 |
| 7 | 12 6 43 ·52 | 1 29 0 ·6 | 141 ·97 |
| 8 | 12 8 27 ·81 | 1 43 12 ·4 | 141 ·88 |
| 9 | 12 10 12 ·10 | 1 57 23 ·7 | 141 ·78 |
| 10 | 12 11 56 ·41 | 2 11 34 ·4 | 141 ·68 |
| 11 | 12 13 40 ·72 | 2 25 44 ·5 | 141 ·58 |
| 12 | 12 15 25 ·06 | 2 39 54 ·0 | 141 ·47 |
| 13 | 12 17 9 ·42 | 2 54 2 ·8 | 141 ·35 |
| 14 | 12 18 53 ·81 | 3 8 10 ·9 | 141 ·22 |
| 15 | 12 20 38 ·22 | 3 22 18 ·2 | 141 ·07 |
| 16 | 12 22 22 ·67 | 3 36 24 ·6 | 140 ·93 |
| 17 | 12 24 7 ·17 | 3 50 30 ·2 | 140 ·77 |
| 18 | 12 25 51 ·70 | 4 4 34 ·8 | 140 ·62 |
| 19 | 12 27 36 ·29 | 4 18 38 ·5 | 140 ·45 |
| 20 | 12 29 20 ·92 | 4 32 41 ·2 | 140 ·27 |
| 21 | 12 31 5 ·61 | 4 46 42 ·8 | 140 ·08 |
| 22 | 12 32 50 ·36 | 5 0 43 ·3 | 139 ·90 |
| 23 | 12 34 35 ·18 | S. 5 14 42 ·7 | 139 ·70 |
| | *FRIDAY* 26. | | |
| 0 | 12 36 20 ·06 | S. 5 28 40 ·9 | 139 ·48 |
| 1 | 12 38 5 ·02 | 5 42 37 ·8 | 139 ·28 |
| 2 | 12 39 50 ·05 | 5 56 33 ·5 | 139 ·05 |
| 3 | 12 41 35 ·16 | 6 10 27 ·8 | 138 ·82 |
| 4 | 12 43 20 ·36 | 6 24 20 ·7 | 138 ·58 |
| 5 | 12 45 5 ·64 | 6 38 12 ·2 | 138 ·33 |
| 6 | 12 46 51 ·02 | 6 52 2 ·2 | 138 ·10 |
| 7 | 12 48 36 ·49 | 7 5 50 ·8 | 137 ·83 |
| 8 | 12 50 22 ·07 | 7 19 37 ·8 | 137 ·55 |
| 9 | 12 52 7 ·75 | 7 33 23 ·1 | 137 ·30 |
| 10 | 12 53 53 ·53 | 7 47 6 ·9 | 137 ·00 |
| 11 | 12 55 39 ·43 | 8 0 48 ·9 | 136 ·72 |
| 12 | 12 57 25 ·44 | 8 14 29 ·2 | 136 ·42 |
| 13 | 12 59 11 ·57 | 8 28 7 ·7 | 136 ·12 |
| 14 | 13 0 57 ·83 | 8 41 44 ·4 | 135 ·80 |
| 15 | 13 2 44 ·21 | 8 55 19 ·2 | 135 ·48 |
| 16 | 13 4 30 ·73 | 9 8 52 ·1 | 135 ·15 |
| 17 | 13 6 17 ·37 | 9 22 23 ·0 | 134 ·83 |
| 18 | 13 8 4 ·16 | 9 35 52 ·0 | 134 ·47 |
| 19 | 13 9 51 ·09 | 9 49 18 ·8 | 134 ·12 |
| 20 | 13 11 38 ·17 | 10 2 43 ·5 | 133 ·77 |
| 21 | 13 13 25 ·39 | 10 16 6 ·1 | 133 ·40 |
| 22 | 13 15 12 ·78 | 10 29 26 ·5 | 133 ·03 |
| 23 | 13 17 0 ·31 | 10 42 44 ·7 | 132 ·63 |
| 24 | 13 18 48 ·01 | S. 10 56 0 ·5 | |

| Hour. | Right Ascension. | Declination. |
|---|---|---|
| | *SATURDAY* 27. | |
| | h m s | ° ′ ″ |
| 0 | 13 18 48 ·01 | S. 10 56 0 ·5 |
| 1 | 13 20 35 ·87 | 11 9 14 ·0 |
| 2 | 13 22 23 ·90 | 11 22 25 ·1 |
| 3 | 13 24 12 ·11 | 11 35 33 ·8 |
| 4 | 13 26 0 ·48 | 11 48 40 ·0 |
| 5 | 13 27 49 ·04 | 12 1 43 ·6 |
| 6 | 13 29 37 ·78 | 12 14 44 ·6 |
| 7 | 13 31 26 ·70 | 12 27 43 ·0 |
| 8 | 13 33 15 ·82 | 12 40 38 ·7 |
| 9 | 13 35 5 ·12 | 12 53 31 ·6 |
| 10 | 13 36 54 ·62 | 13 6 21 ·7 |
| 11 | 13 38 44 ·32 | 13 19 9 ·0 |
| 12 | 13 40 34 ·22 | 13 31 53 ·4 |
| 13 | 13 42 24 ·33 | 13 44 34 ·8 |
| 14 | 13 44 14 ·64 | 13 57 13 ·2 |
| 15 | 13 46 5 ·17 | 14 9 48 ·5 |
| 16 | 13 47 55 ·91 | 14 22 20 ·7 |
| 17 | 13 49 46 ·87 | 14 34 49 ·8 |
| 18 | 13 51 38 ·06 | 14 47 15 ·6 |
| 19 | 13 53 29 ·47 | 14 59 38 ·2 |
| 20 | 13 55 21 ·10 | 15 11 57 ·4 |
| 21 | 13 57 12 ·97 | 15 24 13 ·3 |
| 22 | 13 59 5 ·08 | 15 36 25 ·7 |
| 23 | 14 0 57 ·42 | S. 15 48 34 ·7 |
| | *SUNDAY* 28. | |
| 0 | 14 2 50 ·00 | S. 16 0 40 ·1 |
| 1 | 14 4 42 ·83 | 16 12 42 ·0 |
| 2 | 14 6 35 ·90 | 16 24 40 ·2 |
| 3 | 14 8 29 ·22 | 16 36 34 ·7 |
| 4 | 14 10 22 ·79 | 16 48 25 ·5 |
| 5 | 14 12 16 ·62 | 17 0 12 ·5 |
| 6 | 14 14 10 ·70 | 17 11 55 ·5 |
| 7 | 14 16 5 ·04 | 17 23 34 ·7 |
| 8 | 14 17 59 ·65 | 17 35 9 ·9 |
| 9 | 14 19 54 ·52 | 17 46 41 ·1 |
| 10 | 14 21 49 ·66 | 17 58 8 ·1 |
| 11 | 14 23 45 ·06 | 18 9 31 ·0 |
| 12 | 14 25 40 ·74 | 18 20 49 ·7 |
| 13 | 14 27 36 ·69 | 18 32 4 ·1 |
| 14 | 14 29 32 ·92 | 18 43 14 ·2 |
| 15 | 14 31 29 ·43 | 18 54 19 ·9 |
| 16 | 14 33 26 ·22 | 19 5 21 ·1 |
| 17 | 14 35 23 ·29 | 19 16 17 ·9 |
| 18 | 14 37 20 ·64 | 19 27 10 ·1 |
| 19 | 14 39 18 ·29 | 19 37 57 ·7 |
| 20 | 14 41 16 ·22 | 19 48 40 ·6 |
| 21 | 14 43 14 ·44 | 19 59 18 ·8 |
| 22 | 14 45 12 ·96 | 20 9 52 ·2 |
| 23 | 14 47 11 ·77 | 20 20 20 ·8 |
| 24 | 14 49 10 ·87 | S. 20 30 44 ·5 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. | Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|---|---|---|---|
| | *MONDAY* 29. | | | | *TUESDAY* 30. | | |
| | h m s | ° ′ ″ | ″ | | h m s | ° ′ ″ | ″ |
| 0 | 14 49 10·87 | S. 20 30 44·5 | 103·13 | 0 | 15 38 21·10 | S. 24 13 7·5 | 80·28 |
| 1 | 14 51 10·27 | 20 41 3·3 | 102·28 | 1 | 15 40 27·91 | 24 21 9·2 | 79·20 |
| 2 | 14 53 9·98 | 20 51 17·0 | 101·45 | 2 | 15 42 35·03 | 24 29 4·4 | 78·12 |
| 3 | 14 55 9·98 | 21 1 25·7 | 100·58 | 3 | 15 44 42·45 | 24 36 53·1 | 77·02 |
| 4 | 14 57 10·29 | 21 11 29·2 | 99·73 | 4 | 15 46 50·19 | 24 44 35·2 | 75·92 |
| 5 | 14 59 10·90 | 21 21 27·6 | 98·83 | 5 | 15 48 58·23 | 24 52 10·7 | 74·80 |
| 6 | 15 1 11·81 | 21 31 20·6 | 97·97 | 6 | 15 51 6·58 | 24 59 39·5 | 73·69 |
| 7 | 15 3 13·03 | 21 41 8·4 | 97·07 | 7 | 15 53 15·24 | 25 7 1·6 | 72·53 |
| 8 | 15 5 14·55 | 21 50 50·8 | 96·15 | 8 | 15 55 24·20 | 25 14 16·8 | 71·40 |
| 9 | 15 7 16·38 | 22 0 27·7 | 95·25 | 9 | 15 57 33·46 | 25 21 25·2 | 70·23 |
| 10 | 15 9 18·52 | 22 9 59·2 | 94·30 | 10 | 15 59 43·03 | 25 28 26·6 | 69·08 |
| 11 | 15 11 20·97 | 22 19 25·0 | 93·38 | 11 | 16 1 52·90 | 25 35 21·1 | 67·90 |
| 12 | 15 13 23·73 | 22 28 45·3 | 92·42 | 12 | 16 4 3·06 | 25 42 8·5 | 66·72 |
| 13 | 15 15 26·80 | 22 37 59·8 | 91·47 | 13 | 16 6 13·52 | 25 48 48·8 | 65·53 |
| 14 | 15 17 30·17 | 22 47 8·6 | 90·50 | 14 | 16 8 24·28 | 25 55 22·0 | 64·33 |
| 15 | 15 19 33·86 | 22 56 11·6 | 89·53 | 15 | 16 10 35·33 | 26 1 48·0 | 63·12 |
| 16 | 15 21 37·86 | 23 5 8·8 | 88·53 | 16 | 16 12 46·67 | 26 8 6·7 | 61·90 |
| 17 | 15 23 42·18 | 23 14 0·0 | 87·53 | 17 | 16 14 58·30 | 26 14 18·1 | 60·67 |
| 18 | 15 25 46·80 | 23 22 45·2 | 86·53 | 18 | 16 17 10·22 | 26 20 22·1 | 59·43 |
| 19 | 15 27 51·74 | 23 31 24·4 | 85·50 | 19 | 16 19 22·41 | 26 26 18·7 | 58·18 |
| 20 | 15 29 56·99 | 23 39 57·4 | 84·48 | 20 | 16 21 34·89 | 26 32 7·8 | 56·92 |
| 21 | 15 32 2·55 | 23 48 24·3 | 83·45 | 21 | 16 23 47·65 | 26 37 49·3 | 55·67 |
| 22 | 15 34 8·42 | 23 56 45·0 | 82·40 | 22 | 16 26 0·69 | 26 43 23·3 | 54·38 |
| 23 | 15 36 14·60 | 24 4 59·4 | 81·35 | 23 | 16 28 13·99 | 26 48 49·6 | 53·10 |
| 24 | 15 38 21·10 | S. 24 13 7·5 | | 24 | 16 30 27·57 | S. 26 54 8·2 | |

### PHASES OF THE MOON.

| | d h m |
|---|---|
| ☾ *Last Quarter* | 6 16 33·1 |
| ● New Moon | 13 11 17·8 |
| ☽ *First Quarter* | 20 4 53·8 |
| ○ Full Moon | 28 7 24·5 |

| | d h |
|---|---|
| ☾ Perigee | 13 10 |
| ☾ Apogee | 27 3 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III h. | P.L. of diff. | VI h. | P.L. of diff. | IX h. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ |
| 1 | Regulus | W. | 69 35 58 | 3070 | 71 4 44 | 3069 | 72 33 32 | 3067 | 74 2 |
| | Mars | W. | 53 37 54 | 2977 | 55 8 36 | 2976 | 56 39 19 | 2975 | 58 10 |
| | Jupiter | W. | 23 30 1 | 3065 | 24 58 54 | 3059 | 26 27 54 | 3054 | 27 57 |
| | Antares | E. | 30 19 59 | 3068 | 28 51 10 | 3067 | 27 22 20 | 3065 | 25 53 |
| | Saturn | E. | 33 30 58 | 3173 | 32 4 16 | 3182 | 30 37 45 | 3192 | 29 11 |
| | α Aquilæ | E. | 85 6 44 | 3869 | 83 52 53 | 3873 | 82 39 6 | 3876 | 81 25 |
| 2 | Regulus | W. | 81 27 10 | 3053 | 82 56 17 | 3049 | 84 25 29 | 3046 | 85 54 |
| | Mars | W. | 65 44 15 | 2963 | 67 15 14 | 2960 | 68 46 17 | 2957 | 70 17 |
| | Jupiter | W. | 35 24 3 | 3025 | 36 53 45 | 3021 | 38 23 32 | 3015 | 39 53 |
| | Spica ♍ | W. | 27 26 8 | 3051 | 28 55 18 | 3047 | 30 24 33 | 3043 | 31 53 |
| | Fomalhaut | E. | 100 8 39 | 3300 | 98 44 27 | 3294 | 97 20 9 | 3288 | 95 55 |
| 3 | Mars | W. | 77 54 8 | 2932 | 79 25 46 | 2927 | 80 57 30 | 2922 | 82 29 |
| | Jupiter | W. | 47 24 32 | 2983 | 48 55 6 | 2976 | 50 25 49 | 2970 | 51 56 |
| | Spica ♍ | W. | 39 21 45 | 3016 | 40 51 38 | 3010 | 42 21 39 | 3004 | 43 51 |
| | Fomalhaut | E. | 88 52 13 | 3258 | 87 27 12 | 3253 | 86 2 6 | 3248 | 84 36 |
| | Sun | E. | 131 55 12 | 3389 | 130 32 43 | 3382 | 129 10 6 | 3375 | 127 47 |
| 4 | Mars | W. | 90 10 38 | 2881 | 91 43 21 | 2874 | 93 16 13 | 2866 | 94 49 |
| | Jupiter | W. | 59 33 10 | 2923 | 61 4 59 | 2915 | 62 36 58 | 2906 | 64 9 |
| | Spica ♍ | W. | 51 24 36 | 2960 | 52 55 39 | 2951 | 54 26 53 | 2943 | 55 58 |
| | Fomalhaut | E. | 77 29 18 | 3216 | 76 3 28 | 3212 | 74 37 33 | 3206 | 73 11 |
| | Sun | E. | 120 51 29 | 3328 | 119 27 50 | 3319 | 118 4 0 | 3309 | 116 39 |
| 5 | Mars | W. | 102 37 28 | 2808 | 104 11 45 | 2798 | 105 46 16 | 2787 | 107 21 |
| | Jupiter | W. | 71 53 14 | 2845 | 73 26 44 | 2833 | 75 0 29 | 2821 | 76 34 |
| | Spica ♍ | W. | 63 38 28 | 2881 | 65 11 11 | 2870 | 66 44 8 | 2858 | 68 17 |
| | Antares | W. | 17 44 36 | 2883 | 19 17 17 | 2871 | 20 50 13 | 2859 | 22 23 |
| | Fomalhaut | E. | 65 59 58 | 3179 | 64 33 24 | 3175 | 63 6 45 | 3172 | 61 40 |
| | Sun | E. | 109 36 45 | 3242 | 108 11 26 | 3230 | 106 45 52 | 3217 | 105 20 |
| 6 | Jupiter | W. | 84 28 39 | 2744 | 86 4 21 | 2729 | 87 40 23 | 2714 | 89 16 |
| | Spica ♍ | W. | 76 7 29 | 2779 | 77 42 24 | 2765 | 79 17 38 | 2751 | 80 53 |
| | Antares | W. | 30 13 28 | 2780 | 31 48 22 | 2766 | 33 23 35 | 2751 | 34 59 |
| | Saturn | W. | 28 36 53 | 2909 | 30 9 0 | 2881 | 31 41 43 | 2856 | 33 14 |
| | Fomalhaut | E. | 54 25 53 | 3165 | 52 59 2 | 3167 | 51 32 14 | 3171 | 50 5 |
| | Sun | E. | 98 6 51 | 3132 | 96 39 20 | 3116 | 95 11 30 | 3101 | 93 43 |
| 7 | Jupiter | W. | 97 23 33 | 2621 | 99 1 59 | 2605 | 100 40 47 | 2588 | 102 19 |
| | Antares | W. | 43 1 53 | 2657 | 44 39 31 | 2640 | 46 17 32 | 2623 | 47 55 |
| | Saturn | W. | 41 8 46 | 2720 | 42 44 59 | 2699 | 44 21 40 | 2678 | 45 58 |
| | Fomalhaut | E. | 42 54 13 | 3237 | 41 28 47 | 3259 | 40 3 47 | 3285 | 38 39 |
| | Sun | E. | 86 17 32 | 2999 | 84 47 18 | 2981 | 83 16 41 | 2963 | 81 45 |
| 8 | Antares | W. | 56 13 49 | 2518 | 57 54 37 | 2500 | 59 35 51 | 2481 | 61 17 |
| | Saturn | W. | 54 11 29 | 2556 | 55 51 24 | 2536 | 57 31 47 | 2516 | 59 12 |
| | α Pegasi | E. | 52 6 33 | 2963 | 50 35 34 | 2966 | 49 4 39 | 2973 | 47 33 |
| | Sun | E. | 74 4 48 | 2849 | 72 31 24 | 2830 | 70 57 35 | 2810 | 69 23 |
| 9 | Antares | W. | 69 52 20 | 2371 | 71 36 36 | 2353 | 73 21 19 | 2334 | 75 6 |
| | Saturn | W. | 67 43 49 | 2398 | 69 27 26 | 2379 | 71 11 31 | 2360 | 72 56 |
| | α Pegasi | E. | 40 4 20 | 3089 | 38 35 57 | 3127 | 37 8 20 | 3175 | 35 41 |
| | Sun | E. | 61 25 39 | 2692 | 59 48 49 | 2672 | 58 11 32 | 2654 | 56 33 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Midnight. | P.L. of diff. | XV h. | P.L. of diff. | XVIII h. | P.L. of diff. | XXI h. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 1 | Regulus | W. | 75 31 14 | 3063 | 77 0 9 | 3061 | 78 29 7 | 3059 | 79 58 7 | 3056 |
| | Mars | W. | 59 40 48 | 2972 | 61 11 36 | 2970 | 62 42 26 | 2968 | 64 13 19 | 2966 |
| | Jupiter | W. | 29 26 13 | 3043 | 30 55 32 | 3038 | 32 24 57 | 3034 | 33 54 27 | 3030 |
| | Antares | E. | 24 24 33 | 3062 | 22 55 37 | 3059 | 21 26 37 | 3057 | 19 57 35 | 3055 |
| | Saturn | E. | 27 45 20 | 3215 | 26 19 29 | 3231 | 24 53 57 | 3251 | 23 28 48 | 3273 |
| | α Aquilæ | E. | 80 11 43 | 3887 | 78 58 10 | 3893 | 77 44 43 | 3900 | 76 31 23 | 3908 |
| 2 | Regulus | W. | 87 24 6 | 3038 | 88 53 32 | 3033 | 90 23 4 | 3029 | 91 52 41 | 3023 |
| | Mars | W. | 71 48 35 | 2950 | 73 19 50 | 2946 | 74 51 10 | 2942 | 76 22 36 | 2937 |
| | Jupiter | W. | 41 23 26 | 3005 | 42 53 32 | 3000 | 44 23 45 | 2994 | 45 54 5 | 2989 |
| | Spica ♍ | W. | 33 23 15 | 3035 | 34 52 44 | 3031 | 36 22 18 | 3026 | 37 51 59 | 3022 |
| | Fomalhaut | E. | 94 31 14 | 3279 | 93 6 38 | 3273 | 91 41 55 | 3269 | 90 17 7 | 3264 |
| 3 | Mars | W. | 84 1 20 | 2909 | 85 33 27 | 2903 | 87 5 42 | 2897 | 88 38 5 | 2889 |
| | Jupiter | W. | 53 27 39 | 2956 | 54 58 47 | 2948 | 56 30 5 | 2941 | 58 1 32 | 2932 |
| | Spica ♍ | W. | 45 22 3 | 2990 | 46 52 28 | 2984 | 48 23 1 | 2976 | 49 53 44 | 2969 |
| | Fomalhaut | E. | 83 11 34 | 3238 | 81 46 10 | 3232 | 80 20 39 | 3226 | 78 55 1 | 3222 |
| | Sun | E. | 126 24 29 | 3361 | 125 1 28 | 3353 | 123 38 18 | 3345 | 122 14 59 | 3336 |
| 4 | Mars | W. | 96 22 31 | 2848 | 97 55 57 | 2838 | 99 29 35 | 2829 | 101 3 25 | 2819 |
| | Jupiter | W. | 65 41 32 | 2887 | 67 14 8 | 2877 | 68 46 56 | 2866 | 70 19 58 | 2856 |
| | Spica ♍ | W. | 57 29 55 | 2924 | 59 1 43 | 2913 | 60 33 45 | 2903 | 62 6 0 | 2893 |
| | Fomalhaut | E. | 71 45 24 | 3196 | 70 19 10 | 3192 | 68 52 51 | 3188 | 67 26 27 | 3183 |
| | Sun | E. | 115 15 45 | 3288 | 113 51 20 | 3277 | 112 26 41 | 3266 | 111 1 50 | 3254 |
| 5 | Mars | W. | 108 56 2 | 2763 | 110 31 18 | 2752 | 112 6 49 | 2739 | 113 42 37 | 2726 |
| | Jupiter | W. | 78 8 46 | 2797 | 79 43 18 | 2784 | 81 18 7 | 2770 | 82 53 14 | 2757 |
| | Spica ♍ | W. | 69 50 49 | 2834 | 71 24 33 | 2820 | 72 58 35 | 2808 | 74 32 53 | 2794 |
| | Antares | W. | 23 56 51 | 2834 | 25 30 35 | 2821 | 27 4 35 | 2808 | 28 38 53 | 2795 |
| | Fomalhaut | E. | 60 13 16 | 3167 | 58 46 27 | 3166 | 57 19 37 | 3164 | 55 52 45 | 3164 |
| | Sun | E. | 103 53 58 | 3190 | 102 27 37 | 3176 | 101 0 59 | 3162 | 99 34 4 | 3147 |
| 6 | Jupiter | W. | 90 53 24 | 2684 | 92 30 25 | 2669 | 94 7 46 | 2653 | 95 45 29 | 2637 |
| | Spica ♍ | W. | 82 29 2 | 2720 | 84 5 15 | 2705 | 85 41 48 | 2689 | 87 18 42 | 2673 |
| | Antares | W. | 36 34 59 | 2721 | 38 11 11 | 2705 | 39 47 44 | 2689 | 41 24 38 | 2674 |
| | Saturn | W. | 34 48 43 | 2808 | 36 23 0 | 2785 | 37 57 47 | 2764 | 39 33 2 | 2742 |
| | Fomalhaut | E. | 48 38 52 | 3183 | 47 12 23 | 3193 | 45 46 5 | 3204 | 44 20 0 | 3219 |
| | Sun | E. | 92 14 53 | 3068 | 90 46 4 | 3051 | 89 16 55 | 3034 | 87 47 24 | 3017 |
| 7 | Jupiter | W. | 103 59 32 | 2554 | 105 39 30 | 2537 | 107 19 52 | 2520 | 109 0 38 | 2502 |
| | Antares | W. | 49 34 42 | 2589 | 51 13 52 | 2571 | 52 53 27 | 2553 | 54 33 26 | 2536 |
| | Saturn | W. | 47 36 25 | 2638 | 49 14 29 | 2617 | 50 53 1 | 2596 | 52 32 1 | 2576 |
| | Fomalhaut | E. | 37 15 28 | 3357 | 35 52 22 | 3403 | 34 30 9 | 3460 | 33 9 0 | 3527 |
| | Sun | E. | 80 14 19 | 2925 | 78 42 32 | 2907 | 77 10 22 | 2888 | 75 37 48 | 2868 |
| 8 | Antares | W. | 62 59 37 | 2445 | 64 42 8 | 2426 | 66 25 6 | 2408 | 68 8 30 | 2389 |
| | Saturn | W. | 60 53 56 | 2476 | 62 35 43 | 2457 | 64 17 57 | 2437 | 66 0 39 | 2417 |
| | α Pegasi | E. | 46 3 17 | 2994 | 44 32 57 | 3010 | 43 2 57 | 3031 | 41 33 23 | 3056 |
| | Sun | E. | 67 48 40 | 2771 | 66 13 34 | 2751 | 64 38 2 | 2731 | 63 2 4 | 2711 |
| 9 | Antares | W. | 76 52 4 | 2298 | 78 38 6 | 2280 | 80 24 35 | 2263 | 82 11 29 | 2245 |
| | Saturn | W. | 74 41 3 | 2323 | 76 26 29 | 2304 | 78 12 22 | 2286 | 79 58 42 | 2268 |
| | α Pegasi | E. | 34 16 10 | 3301 | 32 52 0 | 3386 | 31 29 27 | 3488 | 30 8 49 | 3611 |
| | Sun | E. | 54 55 41 | 2615 | 53 17 7 | 2596 | 51 38 6 | 2577 | 49 58 40 | 2560 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P. L. of diff. | III h. | P. L. of diff. | VI h. | P. L. of diff. | IX h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 10 | Antares | W. | 83 58 49 | 2228 | 85 46 35 | 2212 | 87 34 45 | 2195 | 89 23 20 | 2178 |
| | Saturn | W. | 81 45 28 | 2251 | 83 32 40 | 2234 | 85 20 17 | 2217 | 87 8 19 | 2200 |
| | Sun | E. | 48 18 50 | 2541 | 46 38 34 | 2523 | 44 57 53 | 2507 | 43 16 49 | 2490 |
| 11 | Saturn | W. | 96 14 23 | 2126 | 98 4 42 | 2113 | 99 55 21 | 2100 | 101 46 20 | 2088 |
| | α Aquilæ | W. | 53 42 42 | 3453 | 55 3 59 | 3379 | 56 26 40 | 3310 | 57 50 40 | 3248 |
| | Sun | E. | 34 45 47 | 2414 | 33 2 32 | 2400 | 31 18 58 | 2388 | 29 35 6 | 2376 |
| 15 | Sun | W. | 22 7 43 | 2339 | 23 52 46 | 2347 | 25 37 38 | 2357 | 27 22 15 | 2366 |
| | Pollux | E. | 64 8 19 | 2025 | 62 15 24 | 2035 | 60 22 44 | 2046 | 58 30 22 | 2057 |
| | Mars | E. | 114 26 8 | 1999 | 112 32 32 | 2009 | 110 39 11 | 2019 | 108 46 7 | 2031 |
| 16 | Sun | W. | 36 1 28 | 2428 | 37 44 23 | 2443 | 39 26 57 | 2458 | 41 9 9 | 2474 |
| | Pollux | E. | 49 13 11 | 2123 | 47 22 47 | 2138 | 45 32 46 | 2153 | 43 43 8 | 2169 |
| | Regulus | E. | 86 1 38 | 2121 | 84 11 11 | 2136 | 82 21 6 | 2150 | 80 31 23 | 2166 |
| | Mars | E. | 99 25 39 | 2098 | 97 34 37 | 2113 | 95 43 58 | 2128 | 93 53 41 | 2144 |
| 17 | Sun | W. | 49 34 24 | 2559 | 51 14 15 | 2578 | 52 53 40 | 2596 | 54 32 40 | 2615 |
| | Venus | W. | 21 12 11 | 2703 | 22 48 47 | 2713 | 24 25 10 | 2725 | 26 1 17 | 2738 |
| | Pollux | E. | 34 41 7 | 2254 | 32 54 0 | 2272 | 31 7 20 | 2291 | 29 21 7 | 2310 |
| | Regulus | E. | 71 28 50 | 2249 | 69 41 35 | 2266 | 67 54 45 | 2283 | 66 8 21 | 2300 |
| | Mars | E. | 84 48 31 | 2228 | 83 0 45 | 2246 | 81 13 26 | 2264 | 79 26 33 | 2282 |
| | Jupiter | E. | 115 43 29 | 2218 | 113 55 28 | 2234 | 112 7 51 | 2251 | 110 20 40 | 2268 |
| 18 | Sun | W. | 62 41 12 | 2711 | 64 17 37 | 2731 | 65 53 36 | 2751 | 67 29 8 | 2770 |
| | Venus | W. | 33 57 3 | 2818 | 35 31 8 | 2836 | 37 4 49 | 2854 | 38 38 7 | 2872 |
| | Aldebaran | W. | 25 7 21 | 2801 | 26 41 48 | 2772 | 28 16 53 | 2752 | 29 52 24 | 2738 |
| | Regulus | E. | 57 22 52 | 2392 | 55 39 6 | 2410 | 53 55 46 | 2429 | 52 12 52 | 2448 |
| | Mars | E. | 70 38 52 | 2375 | 68 54 41 | 2394 | 67 10 57 | 2412 | 65 27 39 | 2431 |
| | Jupiter | E. | 101 31 13 | 2358 | 99 46 38 | 2376 | 98 2 29 | 2394 | 96 18 46 | 2412 |
| 19 | Sun | W. | 75 20 28 | 2867 | 76 53 29 | 2887 | 78 26 5 | 2905 | 79 58 17 | 2924 |
| | Venus | W. | 46 18 45 | 2965 | 47 49 42 | 2984 | 49 20 15 | 3002 | 50 50 26 | 3021 |
| | Aldebaran | W. | 37 52 47 | 2725 | 39 28 53 | 2730 | 41 4 53 | 2736 | 42 40 45 | 2743 |
| | Regulus | E. | 43 44 52 | 2539 | 42 4 33 | 2556 | 40 24 38 | 2574 | 38 45 8 | 2593 |
| | Mars | E. | 56 57 47 | 2523 | 55 17 6 | 2542 | 53 36 51 | 2560 | 51 57 1 | 2578 |
| | Jupiter | E. | 87 46 35 | 2502 | 86 5 25 | 2520 | 84 24 39 | 2537 | 82 44 17 | 2555 |
| 20 | Sun | W. | 87 33 27 | 3014 | 89 3 22 | 3032 | 90 32 55 | 3049 | 92 2 7 | 3065 |
| | Venus | W. | 58 15 42 | 3110 | 59 43 40 | 3127 | 61 11 17 | 3143 | 62 38 34 | 3160 |
| | Aldebaran | W. | 50 37 22 | 2790 | 52 12 3 | 2801 | 53 46 29 | 2812 | 55 20 41 | 2824 |
| | Regulus | E. | 30 33 40 | 2680 | 28 56 33 | 2696 | 27 19 48 | 2713 | 25 43 26 | 2730 |
| | Mars | E. | 43 43 52 | 2664 | 42 6 24 | 2681 | 40 29 18 | 2697 | 38 52 34 | 2713 |
| | Jupiter | E. | 74 28 21 | 2638 | 72 50 18 | 2654 | 71 12 36 | 2670 | 69 35 16 | 2685 |
| 21 | Sun | W. | 99 23 9 | 3145 | 100 50 24 | 3159 | 102 17 22 | 3174 | 103 44 2 | 3188 |
| | Venus | W. | 69 50 6 | 3239 | 71 15 29 | 3253 | 72 40 35 | 3268 | 74 5 24 | 3282 |
| | Aldebaran | W. | 63 8 1 | 2880 | 64 40 45 | 2891 | 66 13 15 | 2902 | 67 45 31 | 2913 |
| | Mars | E. | 30 54 8 | 2789 | 29 19 26 | 2804 | 27 45 3 | 2818 | 26 10 59 | 2832 |
| | Jupiter | E. | 61 33 36 | 2759 | 59 58 14 | 2772 | 58 23 10 | 2785 | 56 48 23 | 2798 |
| | Spica ♍ | E. | 71 42 24 | 2789 | 70 7 42 | 2803 | 68 33 18 | 2817 | 66 59 12 | 2829 |
| 22 | Sun | W. | 110 53 21 | 3253 | 112 18 27 | 3265 | 113 43 20 | 3277 | 115 7 59 | 3288 |
| | Venus | W. | 81 5 31 | 3346 | 82 28 49 | 3358 | 83 51 53 | 3370 | 85 14 44 | 3381 |
| | Pollux | W. | 31 41 59 | 2898 | 33 14 21 | 2907 | 34 46 31 | 2918 | 36 18 27 | 2927 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Midnight. | P. L. of diff. | XV h. | P. L. of diff. | XVIII h. | P. L. of diff. | XXI h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 10 | Antares | W. | 91 12 20 | 2163 | 93 1 44 | 2147 | 94 51 31 | 2132 | 96 41 41 | 2118 |
| | Saturn | W. | 88 56 46 | 2184 | 90 45 37 | 2170 | 92 34 50 | 2155 | 94 24 26 | 2141 |
| | Sun | E. | 41 35 21 | 2473 | 39 53 30 | 2457 | 38 11 17 | 2442 | 36 28 42 | 2428 |
| 11 | Saturn | W. | 103 37 38 | 2077 | 105 29 12 | 2066 | 107 21 3 | 2057 | 109 13 9 | 2048 |
| | α Aquilæ | W. | 59 15 52 | 3190 | 60 42 13 | 3138 | 62 9 36 | 3089 | 63 37 59 | 3046 |
| | Sun | E. | 27 50 57 | 2366 | 26 6 34 | 2357 | 24 21 57 | 2349 | 22 37 9 | 2342 |
| 15 | Sun | W. | 29 6 38 | 2376 | 30 50 47 | 2388 | 32 34 39 | 2401 | 34 18 13 | 2414 |
| | Pollux | E. | 56 38 17 | 2069 | 54 46 30 | 2082 | 52 55 3 | 2096 | 51 3 57 | 2109 |
| | Mars | E. | 106 53 22 | 2044 | 105 0 56 | 2056 | 103 8 49 | 2070 | 101 17 3 | 2084 |
| 16 | Sun | W. | 42 50 59 | 2490 | 44 32 26 | 2507 | 46 13 30 | 2525 | 47 54 9 | 2542 |
| | Pollux | E. | 41 53 54 | 2186 | 40 5 5 | 2202 | 38 16 40 | 2219 | 36 28 41 | 2236 |
| | Regulus | E. | 78 42 4 | 2182 | 76 53 9 | 2198 | 75 4 38 | 2214 | 73 16 32 | 2231 |
| | Mars | E. | 92 3 49 | 2161 | 90 14 22 | 2177 | 88 25 19 | 2194 | 86 36 42 | 2211 |
| 17 | Sun | W. | 56 11 14 | 2635 | 57 49 22 | 2653 | 59 27 5 | 2672 | 61 4 22 | 2692 |
| | Venus | W. | 27 37 6 | 2752 | 29 12 37 | 2768 | 30 47 47 | 2784 | 32 22 36 | 2801 |
| | Pollux | E. | 27 35 22 | 2329 | 25 50 5 | 2348 | 24 5 16 | 2369 | 22 20 57 | 2390 |
| | Regulus | E. | 64 22 22 | 2319 | 62 36 50 | 2337 | 60 51 45 | 2355 | 59 7 5 | 2373 |
| | Mars | E. | 77 40 7 | 2300 | 75 54 8 | 2319 | 74 8 36 | 2337 | 72 23 30 | 2356 |
| | Jupiter | E. | 108 33 54 | 2287 | 106 47 35 | 2304 | 105 1 41 | 2322 | 103 16 14 | 2340 |
| 18 | Sun | W. | 69 4 15 | 2790 | 70 38 56 | 2809 | 72 13 12 | 2829 | 73 47 2 | 2848 |
| | Venus | W. | 40 11 2 | 2891 | 41 43 33 | 2909 | 43 15 41 | 2928 | 44 47 25 | 2946 |
| | Aldebaran | W. | 31 28 14 | 2729 | 33 4 16 | 2723 | 34 40 25 | 2722 | 36 16 36 | 2722 |
| | Regulus | E. | 50 30 25 | 2465 | 48 48 23 | 2484 | 47 6 47 | 2502 | 45 25 37 | 2520 |
| | Mars | E. | 63 44 48 | 2450 | 62 2 24 | 2468 | 60 20 26 | 2486 | 58 38 53 | 2505 |
| | Jupiter | E. | 94 35 28 | 2431 | 92 52 37 | 2448 | 91 10 11 | 2466 | 89 28 10 | 2484 |
| 19 | Sun | W. | 81 30 5 | 2943 | 83 1 30 | 2961 | 84 32 32 | 2979 | 86 3 11 | 2997 |
| | Venus | W. | 52 20 13 | 3039 | 53 49 38 | 3056 | 55 18 41 | 3074 | 56 47 22 | 3092 |
| | Aldebaran | W. | 44 16 28 | 2751 | 45 52 0 | 2760 | 47 27 20 | 2769 | 49 2 28 | 2780 |
| | Regulus | E. | 37 6 3 | 2610 | 35 27 22 | 2628 | 33 49 5 | 2645 | 32 11 11 | 2662 |
| | Mars | E. | 50 17 36 | 2595 | 48 38 34 | 2613 | 46 59 57 | 2630 | 45 21 43 | 2647 |
| | Jupiter | E. | 81 4 20 | 2571 | 79 24 45 | 2589 | 77 45 35 | 2605 | 76 6 47 | 2621 |
| 20 | Sun | W. | 93 30 59 | 3082 | 94 59 30 | 3098 | 96 27 42 | 3114 | 97 55 35 | 3129 |
| | Venus | W. | 64 5 31 | 3177 | 65 32 8 | 3193 | 66 58 26 | 3209 | 68 24 25 | 3224 |
| | Aldebaran | W. | 56 54 38 | 2835 | 58 28 21 | 2846 | 60 1 49 | 2858 | 61 35 2 | 2869 |
| | Regulus | E. | 24 7 26 | 2747 | 22 31 49 | 2764 | 20 56 34 | 2782 | 19 21 42 | 2799 |
| | Mars | E. | 37 16 12 | 2729 | 35 40 11 | 2744 | 34 4 30 | 2760 | 32 29 9 | 2775 |
| | Jupiter | E. | 67 58 16 | 2701 | 66 21 37 | 2715 | 64 45 17 | 2730 | 63 9 17 | 2744 |
| 21 | Sun | W. | 105 10 25 | 3202 | 106 36 32 | 3215 | 108 2 24 | 3228 | 109 28 0 | 3241 |
| | Venus | W. | 75 29 56 | 3296 | 76 54 12 | 3308 | 78 18 14 | 3322 | 79 42 0 | 3335 |
| | Aldebaran | W. | 69 17 33 | 2924 | 70 49 21 | 2935 | 72 20 56 | 2945 | 73 52 17 | 2955 |
| | Mars | E. | 24 37 12 | 2845 | 23 3 43 | 2859 | 21 30 31 | 2872 | 19 57 36 | 2884 |
| | Jupiter | E. | 55 13 53 | 2811 | 53 39 40 | 2824 | 52 5 44 | 2836 | 50 32 3 | 2848 |
| | Spica ♍ | E. | 65 25 22 | 2842 | 63 51 48 | 2854 | 62 18 30 | 2866 | 60 45 27 | 2877 |
| 22 | Sun | W. | 116 32 25 | 3298 | 117 56 39 | 3309 | 119 20 40 | 3319 | 120 44 30 | 3328 |
| | Venus | W. | 86 37 22 | 3392 | 87 59 48 | 3401 | 89 22 3 | 3412 | 90 44 6 | 3421 |
| | Pollux | W. | 37 50 12 | 2935 | 39 21 46 | 2945 | 40 53 8 | 2954 | 42 24 19 | 29[illegible] |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P. L. of diff. | III h. | P. L. of diff. | VI h. | P. L. of diff. | IX h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 22 | Jupiter | E. | 48 58 37 | 2860 | 47 25 27 | 2871 | 45 52 31 | 2882 | 44 19 49 | 2892 |
| | Spica ♍ | E. | 59 12 39 | 2888 | 57 40 5 | 2899 | 56 7 45 | 2910 | 54 35 39 | 2919 |
| | Saturn | E. | 106 45 49 | 2905 | 105 13 37 | 2916 | 103 41 38 | 2926 | 102 9 52 | 2935 |
| 23 | Sun | W. | 122 8 9 | 3338 | 123 31 37 | 3347 | 124 54 54 | 3355 | 126 18 2 | 3364 |
| | Venus | W. | 92 5 59 | 3431 | 93 27 41 | 3439 | 94 49 13 | 3447 | 96 10 37 | 3455 |
| | Pollux | W. | 43 55 20 | 2970 | 45 26 11 | 2977 | 46 56 53 | 2985 | 48 27 25 | 2992 |
| | Jupiter | E. | 36 39 36 | 2943 | 35 8 11 | 2951 | 33 36 57 | 2961 | 32 5 55 | 2970 |
| | Spica ♍ | E. | 46 58 6 | 2964 | 45 27 8 | 2972 | 43 56 20 | 2980 | 42 25 42 | 2987 |
| | Saturn | E. | 94 33 52 | 2978 | 93 3 12 | 2985 | 91 32 41 | 2993 | 90 2 20 | 3000 |
| 24 | Venus | W. | 102 55 26 | 3490 | 104 16 1 | 3496 | 105 36 30 | 3501 | 106 56 53 | 3507 |
| | Pollux | W. | 55 58 3 | 3022 | 57 27 49 | 3026 | 58 57 29 | 3032 | 60 27 2 | 3036 |
| | Regulus | W. | 19 11 52 | 3038 | 20 41 18 | 3041 | 22 10 40 | 3043 | 23 39 59 | 3047 |
| | Spica ♍ | E. | 34 54 38 | 3018 | 33 24 48 | 3023 | 31 55 4 | 3028 | 30 25 26 | 3034 |
| | Antares | E. | 80 48 51 | 3018 | 79 19 0 | 3023 | 77 49 16 | 3028 | 76 19 38 | 3033 |
| | Saturn | E. | 82 32 39 | 3031 | 81 3 5 | 3037 | 79 33 38 | 3043 | 78 4 18 | 3048 |
| 25 | Pollux | W. | 67 53 32 | 3055 | 69 22 37 | 3058 | 70 51 38 | 3061 | 72 20 36 | 3062 |
| | Regulus | W. | 31 5 39 | 3060 | 32 34 37 | 3062 | 34 3 33 | 3064 | 35 32 26 | 3066 |
| | Mars | W. | 17 49 21 | 3074 | 19 18 2 | 3076 | 20 46 41 | 3078 | 22 15 17 | 3081 |
| | Antares | E. | 68 52 49 | 3052 | 67 23 41 | 3055 | 65 54 36 | 3057 | 64 25 34 | 3060 |
| | Saturn | E. | 70 39 2 | 3069 | 69 10 14 | 3072 | 67 41 30 | 3075 | 66 12 50 | 3078 |
| 26 | Pollux | W. | 79 44 50 | 3071 | 81 13 35 | 3072 | 82 42 19 | 3073 | 84 11 2 | 3074 |
| | Regulus | W. | 42 56 22 | 3073 | 44 25 4 | 3073 | 45 53 46 | 3074 | 47 22 27 | 3075 |
| | Mars | W. | 29 37 39 | 3090 | 31 6 1 | 3091 | 32 34 22 | 3092 | 34 2 41 | 3094 |
| | Antares | E. | 57 1 4 | 3068 | 55 32 15 | 3069 | 54 3 28 | 3070 | 52 34 42 | 3071 |
| | Saturn | E. | 58 50 24 | 3093 | 57 22 6 | 3096 | 55 53 51 | 3098 | 54 25 39 | 3100 |
| 27 | Regulus | W. | 54 45 49 | 3074 | 56 14 31 | 3073 | 57 43 14 | 3072 | 59 11 58 | 3072 |
| | Mars | W. | 41 24 3 | 3095 | 42 52 19 | 3095 | 44 20 35 | 3095 | 45 48 51 | 3094 |
| | Antares | E. | 45 10 58 | 3070 | 43 42 12 | 3070 | 42 13 26 | 3069 | 40 44 39 | 3069 |
| | Saturn | E. | 47 5 17 | 3111 | 45 37 21 | 3114 | 44 9 28 | 3117 | 42 41 39 | 3119 |
| | α Aquilæ | E. | 97 28 7 | 3872 | 96 14 19 | 3866 | 95 0 25 | 3862 | 93 46 27 | 3859 |
| 28 | Regulus | W. | 66 35 58 | 3063 | 68 4 53 | 3061 | 69 33 50 | 3060 | 71 2 49 | 3057 |
| | Mars | W. | 53 10 25 | 3089 | 54 38 48 | 3087 | 56 7 13 | 3086 | 57 35 40 | 3084 |
| | Jupiter | W. | 23 42 26 | 3059 | 25 11 26 | 3054 | 26 40 32 | 3048 | 28 9 45 | 3043 |
| | Antares | E. | 33 20 22 | 3061 | 31 51 25 | 3059 | 30 22 25 | 3057 | 28 53 23 | 3055 |
| | Saturn | E. | 35 23 32 | 3140 | 33 56 11 | 3146 | 32 28 57 | 3153 | 31 1 52 | 3161 |
| | α Aquilæ | E. | 87 35 55 | 3851 | 86 21 45 | 3852 | 85 7 36 | 3853 | 83 53 28 | 3855 |
| 29 | Regulus | W. | 78 28 34 | 3043 | 79 57 54 | 3040 | 81 27 17 | 3036 | 82 56 45 | 3032 |
| | Mars | W. | 64 58 32 | 3073 | 66 27 15 | 3069 | 67 56 2 | 3067 | 69 24 52 | 3064 |
| | Jupiter | W. | 35 37 15 | 3022 | 37 7 1 | 3018 | 38 36 52 | 3013 | 40 6 49 | 3008 |
| | Spica ♍ | W. | 24 27 9 | 3041 | 25 56 31 | 3038 | 27 25 57 | 3034 | 28 55 28 | 3031 |
| | α Aquilæ | E. | 77 43 35 | 3877 | 76 29 52 | 3885 | 75 16 17 | 3893 | 74 2 50 | 3902 |
| 30 | Mars | W. | 76 50 4 | 3046 | 78 19 20 | 3042 | 79 48 41 | 3037 | 81 18 8 | 3033 |
| | Jupiter | W. | 47 37 57 | 2985 | 49 8 28 | 2981 | 50 39 5 | 2975 | 52 9 49 | 2970 |
| | Spica ♍ | W. | 36 24 10 | 3010 | 37 54 10 | 3006 | 39 24 15 | 3001 | 40 54 27 | 2996 |
| | Fomalhaut | E. | 91 41 53 | 3256 | 90 16 50 | 3251 | 88 51 41 | 3247 | 87 26 27 | 3242 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Midnight. | P.L. of diff. | XV h. | P.L. of diff. | XVIII h. | P.L. of diff. | XXI h. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 22 | Jupiter | E. | 42 47 20 | 2903 | 41 15 5 | 2913 | 39 43 3 | 2923 | 38 11 13 | 2933 |
| | Spica ♍ | E. | 53 3 44 | 2929 | 51 32 2 | 2939 | 50 0 32 | 2948 | 48 29 14 | 2956 |
| | Saturn | E. | 100 38 17 | 2944 | 99 6 54 | 2954 | 97 35 43 | 2962 | 96 4 42 | 2970 |
| 23 | Sun | W. | 127 41 0 | 3372 | 129 3 49 | 3379 | 130 26 29 | 3386 | 131 49 1 | 3394 |
| | Venus | W. | 97 31 51 | 3463 | 98 52 56 | 3470 | 100 13 54 | 3477 | 101 34 44 | 3484 |
| | Pollux | W. | 49 57 48 | 2998 | 51 28 4 | 3005 | 52 58 11 | 3010 | 54 28 11 | 3017 |
| | Jupiter | E. | 30 35 5 | 2978 | 29 4 25 | 2988 | 27 33 57 | 2997 | 26 3 41 | 3006 |
| | Spica ♍ | E. | 40 55 13 | 2994 | 39 24 53 | 3000 | 37 54 40 | 3007 | 36 24 36 | 3012 |
| | Saturn | E. | 88 32 7 | 3007 | 87 2 3 | 3014 | 85 32 8 | 3019 | 84 2 19 | 3026 |
| 24 | Venus | W. | 108 17 9 | 3512 | 109 37 20 | 3516 | 110 57 26 | 3521 | 112 17 27 | 3525 |
| | Pollux | W. | 61 56 30 | 3041 | 63 25 52 | 3044 | 64 55 10 | 3048 | 66 24 23 | 3051 |
| | Regulus | W. | 25 9 14 | 3050 | 26 38 25 | 3052 | 28 7 33 | 3055 | 29 36 38 | 3058 |
| | Spica ♍ | E. | 28 55 55 | 3038 | 27 26 29 | 3041 | 25 57 7 | 3046 | 24 27 51 | 3049 |
| | Antares | E. | 74 50 6 | 3038 | 73 20 40 | 3042 | 71 51 19 | 3045 | 70 22 2 | 3048 |
| | Saturn | E. | 76 35 4 | 3052 | 75 5 55 | 3056 | 73 36 52 | 3061 | 72 7 55 | 3065 |
| 25 | Pollux | W. | 73 49 32 | 3065 | 75 18 24 | 3066 | 76 47 15 | 3068 | 78 16 3 | 3069 |
| | Regulus | W. | 37 1 17 | 3068 | 38 30 6 | 3069 | 39 58 53 | 3071 | 41 27 38 | 3072 |
| | Mars | W. | 23 43 50 | 3083 | 25 12 21 | 3085 | 26 40 49 | 3087 | 28 9 15 | 3088 |
| | Antares | E. | 62 56 35 | 3062 | 61 27 39 | 3064 | 59 58 45 | 3066 | 58 29 54 | 3067 |
| | Saturn | E. | 64 44 13 | 3081 | 63 15 40 | 3084 | 61 47 11 | 3087 | 60 18 45 | 3091 |
| 26 | Pollux | W. | 85 39 44 | 3074 | 87 8 26 | 3074 | 88 37 7 | 3074 | 90 5 49 | 3075 |
| | Regulus | W. | 48 51 7 | 3074 | 50 19 48 | 3075 | 51 48 28 | 3075 | 53 17 8 | 3074 |
| | Mars | W. | 35 30 58 | 3094 | 36 59 15 | 3094 | 38 27 32 | 3095 | 39 55 48 | 3096 |
| | Antares | E. | 51 5 57 | 3071 | 49 37 12 | 3071 | 48 8 27 | 3072 | 46 39 43 | 3071 |
| | Saturn | E. | 52 57 29 | 3102 | 51 29 22 | 3105 | 50 1 18 | 3106 | 48 33 16 | 3109 |
| 27 | Regulus | W. | 60 40 42 | 3070 | 62 9 28 | 3069 | 63 38 16 | 3067 | 65 7 6 | 3065 |
| | Mars | W. | 47 17 8 | 3093 | 48 45 26 | 3093 | 50 13 44 | 3092 | 51 42 4 | 3091 |
| | Antares | E. | 39 15 51 | 3067 | 37 47 1 | 3066 | 36 18 10 | 3065 | 34 49 17 | 3063 |
| | Saturn | E. | 41 13 53 | 3123 | 39 46 11 | 3126 | 38 18 33 | 3130 | 36 51 0 | 3134 |
| | α Aquilæ | E. | 92 32 26 | 3856 | 91 18 21 | 3854 | 90 4 14 | 3852 | 88 50 5 | 3851 |
| 28 | Regulus | W. | 72 31 51 | 3055 | 74 0 56 | 3051 | 75 30 5 | 3048 | 76 59 18 | 3046 |
| | Mars | W. | 59 4 9 | 3082 | 60 32 41 | 3080 | 62 1 15 | 3078 | 63 29 52 | 3075 |
| | Jupiter | W. | 29 39 4 | 3039 | 31 8 28 | 3035 | 32 37 58 | 3030 | 34 7 34 | 3026 |
| | Antares | E. | 27 24 18 | 3052 | 25 55 10 | 3050 | 24 25 59 | 3047 | 22 56 45 | 3044 |
| | Saturn | E. | 29 34 56 | 3171 | 28 8 12 | 3183 | 26 41 42 | 3196 | 25 15 28 | 3214 |
| | α Aquilæ | E. | 82 39 22 | 3857 | 81 25 19 | 3860 | 80 11 19 | 3865 | 78 57 24 | 3871 |
| 29 | Regulus | W. | 84 26 18 | 3029 | 85 55 54 | 3025 | 87 25 36 | 3021 | 88 55 23 | 3017 |
| | Mars | W. | 70 53 46 | 3061 | 72 22 44 | 3057 | 73 51 46 | 3053 | 75 20 53 | 3050 |
| | Jupiter | W. | 41 36 52 | 3004 | 43 7 0 | 3000 | 44 37 13 | 2995 | 46 7 32 | 2990 |
| | Spica ♍ | W. | 30 25 3 | 3027 | 31 54 42 | 3023 | 33 24 26 | 3019 | 34 54 15 | 3014 |
| | α Aquilæ | E. | 72 49 32 | 3913 | 71 36 25 | 3924 | 70 23 30 | 3936 | 69 10 47 | 3951 |
| 30 | Mars | W. | 82 47 40 | 3029 | 84 17 17 | 3023 | 85 47 1 | 3018 | 87 16 51 | 3013 |
| | Jupiter | W. | 53 40 39 | 2965 | 55 11 36 | 2960 | 56 42 39 | 2954 | 58 13 50 | 2948 |
| | Spica ♍ | W. | 42 24 45 | 2991 | 43 55 9 | 2986 | 45 25 39 | 2980 | 46 56 17 | 2975 |
| | Fomalhaut | E. | 86 1 8 | 3238 | 84 35 44 | 3234 | 83 10 15 | 3230 | 81 44 42 | 3227 |

## CONFIGURATIONS OF THE SATELLITES OF JUPITER,

### At 11h 30m, Mean Time.

| Day of the Month. | West. | East. |
|---|---|---|
| 1 | 4· 3· ·1 2·○ | |
| 2 | 4· ·2 ·2 ○ 1· | |
| 3 | 4· ·3 ·○1 ·2 | |
| 4 | ·4 1·○ ·3 2· | |
| 5 | ·4 2· ○ ·1 ·3 | |
| 6 | ·4 1· ·2 ○ 3· | |
| 7 | ·4 ○ 3·1· ·2 | |
| 8 | 3· ·1 ○·4 | ○2· |
| 9 | 3· ·2 ○ 1· ·4 | |
| 10 | ·3 ·1 ○ ·2 ·4 | |
| 11 | ●·3 1·○ ○ 2· ·4 | |
| 12 | 2· ○ ·1 ·3 4· | |
| 13 | ·2 1· ○ 3· 4· | |
| 14 | ○ ·1 3· ·2 4· | |
| 15 | ·1 3· ○2· 4· | |
| 16 | 3· ·2 ○ 4· 1· | |
| 17 | ·3 4· ·1 ○ ·2 · | |
| 18 | 4· ·○ 1· 2· | |
| 19 | 4· 2· ○ ·3 | ●·1 |
| 20 | 4· ·2 1· ○ 3· | |
| 21 | ·4 ○ ·1 ·2 3· | |
| 22 | ·4 1·3· ○ 2· | |
| 23 | ·4 3· 2· ○ 1· | |
| 24 | ·3 ·4·1 ○ | ●·2 |
| 25 | ·3 ○ 1··4 2· | |
| 26 | ·1 ● 2· ○ ·3 ·4 | |
| 27 | ·2 1· ○ 3· ·4 | |
| 28 | ○ ·1 ·23· ·4 | |
| 29 | 1· 3· ○ 2· 4· | |
| 30 | 3· 2· ○ 1· 4· | |

This Table represents, at 11h 30m after *Mean Noon* of each day of the month, the relative positions of the images of Jupiter and his Satellites, as they would appear (disregarding their latitudes) in an inverting telescope. Jupiter is indicated by the white circles (○) in the centre of the page; the Satellites by points. The numerals 1, 2, 3, and 4, annexed to the points, serve to distinguish the Satellites from each other; and their positions are such as to indicate the directions of the Satellites' motions, which are in all cases to be considered as *towards the numerals*. When a Satellite is at its greatest elongation, the point is placed above or below the centre of the numeral. A white circle (○) at the left or right hand of the page, denotes that the Satellite placed by the side of it is *on* the disc of Jupiter, and a black circle (●) that it is either *behind* the disc, or in the shadow, of Jupiter.

## ECLIPSES OF THE SATELLITES OF JUPITER.

| Satellite. | Day of the Month. | Mean Time. | Sidereal Time. | PHASE as seen in an inverting Telescope. |
|---|---|---|---|---|
| | | h m s | h m s | |
| I. | 1 | 17 4 24·9 | 17 43 51·8 | Im. |
| | 5* | 8 10 53·6 | 9 4 39·1 | Em. |
| | 7 | 2 39 20·2 | 3 40 4·3 | Em. |
| | 8 | 21 7 49·8 | 22 15 32·5 | Em. |
| | 10* | 15 36 17·2 | 16 50 58·6 | Em. |
| | 12* | 10 4 47·8 | 11 26 27·8 | Em. |
| | 14 | 4 33 15·6 | 6 1 54·3 | Em. |
| | 15 | 23 1 47·1 | 0 37 24·4 | Em. |
| | 17 | 17 30 15·9 | 19 12 51·9 | Em. |
| | 19* | 11 58 47·6 | 13 48 22·3 | Em. |
| | 21 | 6 27 17·0 | 8 23 50·4 | Em. |
| | 23 | 0 55 49·9 | 2 59 21·9 | Em. |
| | 24 | 19 24 20·0 | 21 34 50·6 | Em. |
| | 26* | 13 52 53·5 | 16 10 22·7 | Em. |
| | 28* | 8 21 24·5 | 10 45 52·5 | Em. |
| | 30 | 2 49 58·3 | 5 21 25·0 | Em. |
| II. | 3 | 2 58 4·8 | 3 43 5·8 | Im. |
| | 6 | 18 40 28·3 | 19 39 53·7 | Em. |
| | 10* | 7 58 36·4 | 9 12 2·7 | Em. |
| | 13 | 21 16 6·6 | 22 43 33·5 | Em. |
| | 17* | 10 34 24·0 | 12 15 51·7 | Em. |
| | 20 | 23 51 59·0 | 1 47 27·4 | Em. |
| | 24* | 13 10 26·6 | 15 19 55·8 | Em. |
| | 28 | 2 28 6·8 | 4 51 36·7 | Em. |
| III. | 4 | 5 34 4·6 | 6 23 27·7 | Im. |
| | 4* | 8 11 24·6 | 9 1 13·6 | Em. |
| | 11* | 12 9 1·5 | 13 27 5·4 | Em. |
| | 18 | 16 7 0·8 | 17 53 19·7 | Em. |
| | 25 | 20 4 30·7 | 22 19 4·4 | Em. |



## APPROXIMATE SIDEREAL TIMES
OF THE
## OCCULTATIONS OF JUPITER'S SATELLITES BY JUPITER,
AND OF THE
## TRANSITS OF THE SATELLITES AND THEIR SHADOWS OVER THE DISC OF THE PLANET.

| Satellite. | Occultations. | | Transits of Satellites. | | Transits of Shadows. | |
|---|---|---|---|---|---|---|
| | Immersion. | Emersion. | Ingress. | Egress. | Ingress. | Egress. |
| | d h m | d h m | d h m | d h m | d h m | d h m |
| I. | In the Shadow. | 1 19 58 | 2* 14 56 | 2* 17 9 | 2* 14 53 | 2* 17 8 |
| | 3* 12 18 | 3* 14 31 | 4* 9 29 | 4* 11 42 | 4* 9 29 | 4* 11 43 |
| | 5 6 51 | | 6 4 2 | 6 6 15 | 6 4 4 | 6 6 19 |
| | 7 1 24 | | 7 22 34 | 7 0 48 | 7 22 40 | 7 0 54 |
| | 8 19 57 | | 9* 17 7 | 9 19 21 | 9* 17 15 | 9 19 30 |
| | 10* 14 30 | | 11* 11 40 | 11* 13 54 | 11* 11 51 | 11* 14 6 |
| | 12* 9 3 | | 13 6 13 | 13 8 27 | 13 6 27 | 13 8 41 |
| | 14 3 36 | In | 14 0 46 | 15 3 0 | 14 1 2 | 15 3 17 |
| | 15 22 9 | | 16 19 20 | 16 21 33 | 16 19 38 | 16 21 52 |
| | 17* 16 42 | the | 18* 13 53 | 18* 16 6 | 18* 14 13 | 18* 16 28 |
| | 19* 11 15 | | 20 8 26 | 20* 10 39 | 20 8 49 | 20* 11 3 |
| | 21 5 48 | Shadow. | 22 2 59 | 22 5 12 | 22 3 24 | 22 5 39 |
| | 22 0 21 | | 23 21 32 | 23 23 46 | 23 22 0 | 23 0 14 |
| | 24 18 54 | | 25* 16 5 | 25 18 19 | 25* 16 36 | 25 18 50 |
| | 26* 13 27 | | 27* 10 39 | 27* 12 52 | 27* 11 11 | 27* 13 26 |
| | 28 8 0 | | 29 5 12 | 29 7 26 | 29 5 47 | 29 8 1 |
| | 30 2 33 | | 30 23 45 | 30 1 59 | 30 0 23 | 31 2 37 |
| II. | In the Shadow. | 3 6 9 | 1* 9 34 | 1* 11 57 | 1* 9 24 | 1* 11 54 |
| | 6* 17 7 | | 4 22 55 | 5 1 18 | 4 22 55 | 5 1 24 |
| | 10 6 29 | In | 8* 12 15 | 8* 14 39 | 8* 12 26 | 8* 14 56 |
| | 13 19 50 | | 12 1 36 | 12 4 0 | 12 1 57 | 12 4 27 |
| | 17 9 12 | the | 15* 14 57 | 15* 17 21 | 15* 15 29 | 15 17 58 |
| | 20 22 33 | | 19 4 18 | 19 6 43 | 19 5 0 | 19 7 29 |
| | 24* 11 56 | Shadow. | 22* 17 39 | 22 20 5 | 22 18 31 | 22 21 0 |
| | 27 1 18 | | 26 7 0 | 26 9 26 | 26 8 2 | 26* 10 31 |
| | | | 29 20 22 | 29 22 49 | 29 21 34 | 29 0 3 |
| III. | 11* 10 8 | In the | 7 20 10 | 7 22 42 | 7 20 26 | 7 23 14 |
| | 18* 13 53 | Shadow. | 14 23 55 | 15 2 28 | 14 0 52 | 15 3 41 |
| | 25* 17 38 | | 22 3 40 | 22 6 16 | 22 5 19 | 22 8 7 |
| | | | 29 7 29 | 29 10 7 | 29 9 47 | 29* 12 34 |

| Day of the Month. | For correcting the Places of the Fixed Stars. At Mean Midnight, Logarithm of A | B | C | D | Mean Time of Transit of the First Point of Aries. | Mean Equinoctial Time, adding 0d·2939960. Days. | From Mean Noon of January 1. Day of the Year. | Fraction of the Year. |
|---|---|---|---|---|---|---|---|---|
| | | | | | h m s | | | |
| 1 | —1 ·2624 | —0 ·6111 | +9 ·4349 | —0 ·9829 | 23 19 31 ·49 | 9 | 90 | ·246 |
| 2 | 1 ·2608 | 0 ·6460 | 9 ·4385 | 0 ·9825 | 23 15 35 ·59 | 10 | 91 | ·249 |
| 3 | 1 ·2591 | 0 ·6782 | 9 ·4421 | 0 ·9821 | 23 11 39 ·68 | 11 | 92 | ·252 |
| 4 | —1 ·2572 | —0 ·7081 | +9 ·4456 | —0 ·9817 | 23 7 43 ·77 | 12 | 93 | ·255 |
| 5 | 1 ·2552 | 0 ·7359 | 9 ·4492 | 0 ·9812 | 23 3 47 ·85 | 13 | 94 | ·257 |
| 6 | 1 ·2531 | 0 ·7619 | 9 ·4528 | 0 ·9807 | 22 59 51 ·94 | 14 | 95 | ·260 |
| 7 | —1 ·2508 | —0 ·7863 | +9 ·4564 | —0 ·9802 | 22 55 56 ·03 | 15 | 96 | ·263 |
| 8 | 1 ·2484 | 0 ·8092 | 9 ·4599 | 0 ·9797 | 22 52 0 ·11 | 16 | 97 | ·266 |
| 9 | 1 ·2458 | 0 ·8309 | 9 ·4635 | 0 ·9791 | 22 48 4 ·20 | 17 | 98 | ·268 |
| 10 | —1 ·2431 | —0 ·8514 | +9 ·4670 | —0 ·9785 | 22 44 8 ·30 | 18 | 99 | ·271 |
| 11 | 1 ·2403 | 0 ·8709 | 9 ·4706 | 0 ·9779 | 22 40 12 ·39 | 19 | 100 | ·274 |
| 12 | 1 ·2373 | 0 ·8894 | 9 ·4741 | 0 ·9773 | 22 36 16 ·49 | 20 | 101 | ·277 |
| 13 | —1 ·2342 | —0 ·9069 | +9 ·4777 | —0 ·9766 | 22 32 20 ·59 | 21 | 102 | ·279 |
| 14 | 1 ·2309 | 0 ·9237 | 9 ·4813 | 0 ·9760 | 22 28 24 ·69 | 22 | 103 | ·282 |
| 15 | 1 ·2275 | 0 ·9398 | 9 ·4848 | 0 ·9753 | 22 24 28 ·78 | 23 | 104 | ·285 |
| 16 | —1 ·2239 | —0 ·9551 | +9 ·4884 | —0 ·9746 | 22 20 32 ·87 | 24 | 105 | ·287 |
| 17 | 1 ·2202 | 0 ·9698 | 9 ·4920 | 0 ·9738 | 22 16 36 ·96 | 25 | 106 | ·290 |
| 18 | 1 ·2163 | 0 ·9838 | 9 ·4955 | 0 ·9731 | 22 12 41 ·04 | 26 | 107 | ·293 |
| 19 | —1 ·2122 | —0 ·9973 | +9 ·4991 | —0 ·9723 | 22 8 45 ·13 | 27 | 108 | ·296 |
| 20 | 1 ·2080 | 1 ·0103 | 9 ·5027 | 0 ·9715 | 22 4 49 ·21 | 28 | 109 | ·298 |
| 21 | 1 ·2036 | 1 ·0227 | 9 ·5063 | 0 ·9707 | 22 0 53 ·30 | 29 | 110 | ·301 |
| 22 | —1 ·1991 | —1 ·0347 | +9 ·5099 | —0 ·9699 | 21 56 57 ·39 | 30 | 111 | ·304 |
| 23 | 1 ·1943 | 1 ·0462 | 9 ·5134 | 0 ·9691 | 21 53 1 ·48 | 31 | 112 | ·307 |
| 24 | 1 ·1894 | 1 ·0573 | 9 ·5170 | 0 ·9682 | 21 49 5 ·58 | 32 | 113 | ·309 |
| 25 | —1 ·1844 | —1 ·0680 | +9 ·5206 | —0 ·9674 | 21 45 9 ·67 | 33 | 114 | ·312 |
| 26 | 1 ·1791 | 1 ·0783 | 9 ·5243 | 0 ·9665 | 21 41 13 ·77 | 34 | 115 | ·315 |
| 27 | 1 ·1736 | 1 ·0883 | 9 ·5279 | 0 ·9656 | 21 37 17 ·86 | 35 | 116 | ·318 |
| 28 | —1 ·1680 | —1 ·0979 | +9 ·5315 | —0 ·9647 | 21 33 21 ·96 | 36 | 117 | ·320 |
| 29 | 1 ·1622 | 1 ·1071 | 9 ·5351 | 0 ·9638 | 21 29 26 ·05 | 37 | 118 | ·323 |
| 30 | 1 ·1561 | 1 ·1161 | 9 ·5388 | 0 ·9629 | 21 25 30 ·14 | 38 | 119 | ·326 |
| 31 | —1 ·1498 | —1 ·1248 | +9 ·5424 | —0 ·9620 | 21 21 34 ·22 | 39 | 120 | ·329 |

## AT APPARENT NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | Diff. for 1 hour. | THE SUN'S Apparent Declination. | Diff. for 1 hour. | Sidereal Time of the Semidiam. passing the Meridian.* | Equation of Time, *to be subtracted from Apparent Time.* |
|---|---|---|---|---|---|---|---|
| | | h m s | s | ° ′ ″ | ″ | m s | m s |
| Wed. | 1 | 2 31 53 ·99 | 9 ·535 | N.14 57 10 ·3 | 45 ·31 | 1 5 ·95 | 3 0 ·76 |
| Thur. | 2 | 2 35 42 ·84 | 9 ·559 | 15 15 17 ·8 | 44 ·69 | 1 6 ·02 | 3 8 ·45 |
| Frid. | 3 | 2 39 32 ·26 | 9 ·583 | 15 33 10 ·4 | 44 ·06 | 1 6 ·10 | 3 15 ·58 |
| Sat. | 4 | 2 43 22 ·24 | 9 ·606 | 15 50 47 ·8 | 43 ·41 | 1 6 ·18 | 3 22 ·14 |
| *Sun.* | 5 | 2 47 12 ·78 | 9 ·630 | 16 8 9 ·6 | 42 ·75 | 1 6 ·26 | 3 28 ·14 |
| Mon. | 6 | 2 51 3 ·91 | 9 ·655 | 16 25 15 ·5 | 42 ·07 | 1 6 ·34 | 3 33 ·56 |
| Tues. | 7 | 2 54 55 ·63 | 9 ·679 | 16 42 5 ·2 | 41 ·38 | 1 6 ·42 | 3 38 ·38 |
| Wed. | 8 | 2 58 47 ·92 | 9 ·703 | 16 58 38 ·3 | 40 ·68 | 1 6 ·50 | 3 42 ·62 |
| Thur. | 9 | 3 2 40 ·80 | 9 ·728 | 17 14 54 ·6 | 39 ·96 | 1 6 ·58 | 3 46 ·29 |
| Frid. | 10 | 3 6 34 ·28 | 9 ·753 | 17 30 53 ·6 | 39 ·23 | 1 6 ·66 | 3 49 ·35 |
| Sat. | 11 | 3 10 28 ·35 | 9 ·777 | 17 46 35 ·2 | 38 ·49 | 1 6 ·74 | 3 51 ·83 |
| *Sun.* | 12 | 3 14 23 ·00 | 9 ·802 | 18 1 59 ·0 | 37 ·73 | 1 6 ·83 | 3 53 ·72 |
| Mon. | 13 | 3 18 18 ·25 | 9 ·826 | 18 17 4 ·6 | 36 ·97 | 1 6 ·91 | 3 55 ·03 |
| Tues. | 14 | 3 22 14 ·07 | 9 ·850 | 18 31 51 ·9 | 36 ·19 | 1 6 ·99 | 3 55 ·76 |
| Wed. | 15 | 3 26 10 ·47 | 9 ·873 | 18 46 20 ·4 | 35 ·40 | 1 7 ·08 | 3 55 ·93 |
| Thur. | 16 | 3 30 7 ·43 | 9 ·897 | 19 0 30 ·0 | 34 ·59 | 1 7 ·16 | 3 55 ·53 |
| Frid. | 17 | 3 34 4 ·95 | 9 ·920 | 19 14 20 ·2 | 33 ·77 | 1 7 ·24 | 3 54 ·57 |
| Sat. | 18 | 3 38 3 ·02 | 9 ·942 | 19 27 50 ·8 | 32 ·95 | 1 7 ·32 | 3 53 ·07 |
| *Sun.* | 19 | 3 42 1 ·64 | 9 ·965 | 19 41 1 ·6 | 32 ·11 | 1 7 ·40 | 3 51 ·01 |
| Mon. | 20 | 3 46 0 ·79 | 9 ·987 | 19 53 52 ·2 | 31 ·26 | 1 7 ·47 | 3 48 ·42 |
| Tues. | 21 | 3 50 0 ·47 | 10 ·008 | 20 6 22 ·5 | 30 ·40 | 1 7 ·55 | 3 45 ·31 |
| Wed. | 22 | 3 54 0 ·66 | 10 ·030 | 20 18 32 ·1 | 29 ·53 | 1 7 ·63 | 3 41 ·69 |
| Thur. | 23 | 3 58 1 ·37 | 10 ·051 | 20 30 20 ·8 | 28 ·65 | 1 7 ·70 | 3 37 ·54 |
| Frid. | 24 | 4 2 2 ·59 | 10 ·072 | 20 41 48 ·5 | 27 ·75 | 1 7 ·78 | 3 32 ·88 |
| Sat. | 25 | 4 6 4 ·32 | 10 ·093 | 20 52 54 ·9 | 26 ·87 | 1 7 ·85 | 3 27 ·72 |
| *Sun.* | 26 | 4 10 6 ·54 | 10 ·113 | 21 3 39 ·8 | 25 ·97 | 1 7 ·92 | 3 22 ·07 |
| Mon. | 27 | 4 14 9 ·26 | 10 ·133 | 21 14 3 ·0 | 25 ·05 | 1 7 ·99 | 3 15 ·93 |
| Tues. | 28 | 4 18 12 ·46 | 10 ·153 | 21 24 4 ·3 | 24 ·13 | 1 8 ·06 | 3 9 ·31 |
| Wed. | 29 | 4 22 16 ·12 | 10 ·173 | 21 33 43 ·5 | 23 ·20 | 1 8 ·12 | 3 2 ·22 |
| Thur. | 30 | 4 26 20 ·26 | 10 ·191 | 21 43 0 ·4 | 22 ·27 | 1 8 ·18 | 2 54 ·67 |
| Frid. | 31 | 4 30 24 ·85 | 10 ·209 | 21 51 54 ·9 | 21 ·32 | 1 8 ·24 | 2 46 ·67 |
| Sat. | 32 | 4 34 29 ·87 | | N.22 0 26 ·6 | | 1 8 ·30 | 2 38 ·23 |

* *Mean* Time of the Semidiameter passing may be found by subtracting 0ᵐ·18 from the *Sider*

## AT MEAN NOON.

| | Day of the Month. | THE SUN'S Apparent Right Ascension. | THE SUN'S Apparent Declination. | THE SUN'S Semidiam.* | Equation of Time, *to be added to Mean Time.* | Sidereal Time. |
|---|---|---|---|---|---|---|
| | | h m s | ° ′ ″ | ′ ″ | m s | h m s |
| ed. | 1 | 2 31 54 ·47 | N.14 57 12 ·5 | 15 53 ·1 | 3 0 ·78 | 2 34 55 ·25 |
| ur. | 2 | 2 35 43 ·34 | 15 15 20 ·2 | 15 52 ·9 | 3 8 ·47 | 2 38 51 ·81 |
| id. | 3 | 2 39 32 ·78 | 15 33 12 ·9 | 15 52 ·6 | 3 15 ·59 | 2 42 48 ·37 |
| t. | 4 | 2 43 22 ·77 | 15 50 50 ·3 | 15 52 ·4 | 3 22 ·16 | 2 46 44 ·93 |
| n. | 5 | 2 47 13 ·34 | 16 8 12 ·1 | 15 52 ·2 | 3 28 ·15 | 2 50 41 ·49 |
| on. | 6 | 2 51 4 ·48 | 16 25 18 ·0 | 15 51 ·9 | 3 33 ·57 | 2 54 38 ·05 |
| es. | 7 | 2 54 56 ·21 | 16 42 7 ·7 | 15 51 ·7 | 3 38 ·39 | 2 58 34 ·60 |
| ed. | 8 | 2 58 48 ·52 | 16 58 40 ·9 | 15 51 ·5 | 3 42 ·64 | 3 2 31 ·16 |
| ur. | 9 | 3 2 41 ·41 | 17 14 57 ·1 | 15 51 ·3 | 3 46 ·30 | 3 6 27 ·71 |
| id. | 10 | 3 6 34 ·90 | 17 30 56 ·1 | 15 51 ·0 | 3 49 ·36 | 3 10 24 ·26 |
| t. | 11 | 3 10 28 ·97 | 17 46 37 ·7 | 15 50 ·8 | 3 51 ·84 | 3 14 20 ·81 |
| n. | 12 | 3 14 23 ·64 | 18 2 1 ·4 | 15 50 ·6 | 3 53 ·72 | 3 18 17 ·36 |
| on. | 13 | 3 18 18 ·89 | 18 17 7 ·1 | 15 50 ·4 | 3 55 ·03 | 3 22 13 ·92 |
| es. | 14 | 3 22 14 ·72 | 18 31 54 ·3 | 15 50 ·2 | 3 55 ·76 | 3 26 10 ·48 |
| ed. | 15 | 3 26 11 ·11 | 18 46 22 ·8 | 15 50 ·0 | 3 55 ·93 | 3 30 7 ·04 |
| ur. | 16 | 3 30 8 ·08 | 19 0 32 ·2 | 15 49 ·8 | 3 55 ·53 | 3 34 3 ·61 |
| id. | 17 | 3 34 5 ·60 | 19 14 22 ·4 | 15 49 ·6 | 3 54 ·57 | 3 38 0 ·17 |
| t. | 18 | 3 38 3 ·67 | 19 27 53 ·0 | 15 49 ·5 | 3 53 ·06 | 3 41 56 ·73 |
| n. | 19 | 3 42 2 ·28 | 19 41 3 ·7 | 15 49 ·3 | 3 51 ·01 | 3 45 53 ·29 |
| n. | 20 | 3 46 1 ·43 | 19 53 54 ·2 | 15 49 ·1 | 3 48 ·41 | 3 49 49 ·84 |
| es. | 21 | 3 50 1 ·09 | 20 6 24 ·4 | 15 48 ·9 | 3 45 ·31 | 3 53 46 ·40 |
| d. | 22 | 3 54 1 ·27 | 20 18 33 ·9 | 15 48 ·8 | 3 41 ·68 | 3 57 42 ·95 |
| ur. | 23 | 3 58 1 ·97 | 20 30 22 ·6 | 15 48 ·6 | 3 37 ·53 | 4 1 39 ·50 |
| d. | 24 | 4 2 3 ·19 | 20 41 50 ·2 | 15 48 ·4 | 3 32 ·86 | 4 5 36 ·05 |
| . | 25 | 4 6 4 ·90 | 20 52 56 ·5 | 15 48 ·3 | 3 27 ·71 | 4 9 32 ·61 |
| . | 26 | 4 10 7 ·11 | 21 3 41 ·3 | 15 48 ·1 | 3 22 ·05 | 4 13 29 ·16 |
| n. | 27 | 4 14 9 ·81 | 21 14 4 ·4 | 15 48 ·0 | 3 15 ·91 | 4 17 25 ·72 |
| es. | 28 | 4 18 12 ·99 | 21 24 5 ·6 | 15 47 ·8 | 3 9 ·30 | 4 21 22 ·29 |
| d. | 29 | 4 22 16 ·64 | 21 33 44 ·7 | 15 47 ·7 | 3 2 ·21 | 4 25 18 ·85 |
| ur. | 30 | 4 26 20 ·75 | 21 43 1 ·5 | 15 47 ·5 | 2 54 ·66 | 4 29 15 ·41 |
| id. | 31 | 4 30 25 ·32 | 21 51 55 ·9 | 15 47 ·4 | 2 46 ·65 | 4 33 11 ·97 |
| t. | 32 | 4 34 30 ·32 | N.22 0 27 ·5 | 15 47 ·2 | 2 38 ·22 | 4 37 8 ·54 |

* The Semidiameter for *Apparent* Noon may be assumed the same as that for *Mean* Noon.

## MEAN TIME.

| Day of the Month. | THE SUN'S *Apparent* Longitude. *Noon.* | THE SUN'S *Apparent* Latitude. *Noon.* | Logarithm of the Radius Vector of the Earth. *Noon.* | THE MOON'S Semidiameter. *Noon.* | THE MOON'S Semidiameter. *Midnight.* | THE MOON'S Horizontal Par *Noon.* | THE MOON'S Horizontal Par *Mi* |
|---|---|---|---|---|---|---|---|
| | ° ′ ″ | ″ | | ′ ″ | ′ ″ | ′ ″ | ′ |
| 1 | 40 23 51 ·6 | S. 0 ·84 | 0 ·0035456 | 14 52 ·8 | 14 55 ·9 | 54 36 ·5 | 54 |
| 2 | 41 22 0 ·0 | 0 ·85 | 0 ·0036542 | 14 59 ·4 | 15 3 ·3 | 55 0 ·6 | 55 |
| 3 | 42 20 7 ·0 | 0 ·83 | 0 ·0037622 | 15 7 ·6 | 15 12 ·3 | 55 30 ·6 | 55 |
| 4 | 43 18 12 ·5 | 0 ·77 | 0 ·0038693 | 15 17 ·4 | 15 22 ·8 | 56 6 ·5 | 56 |
| 5 | 44 16 16 ·5 | 0 ·68 | 0 ·0039755 | 15 28 ·8 | 15 34 ·9 | 56 48 ·3 | 57 |
| 6 | 45 14 19 ·2 | 0 ·58 | 0 ·0040805 | 15 41 ·4 | 15 48 ·2 | 57 34 ·8 | 57 |
| 7 | 46 12 20 ·6 | 0 ·46 | 0 ·0041843 | 15 55 ·1 | 16 2 ·0 | 58 24 ·9 | 58 |
| 8 | 47 10 20 ·5 | 0 ·32 | 0 ·0042865 | 16 8 ·8 | 16 15 ·3 | 59 15 ·1 | 59 |
| 9 | 48 8 18 ·9 | 0 ·18 | 0 ·0043872 | 16 21 ·4 | 16 26 ·9 | 60 1 ·4 | 60 |
| 10 | 49 6 16 ·2 | S. 0 ·05 | 0 ·0044860 | 16 31 ·6 | 16 35 ·4 | 60 38 ·9 | 60 |
| 11 | 50 4 12 ·1 | N. 0 ·07 | 0 ·0045831 | 16 38 ·1 | 16 39 ·7 | 61 2 ·8 | 61 |
| 12 | 51 2 6 ·6 | 0 ·17 | 0 ·0046782 | 16 40 ·0 | 16 39 ·0 | 61 9 ·6 | 61 |
| 13 | 51 59 59 ·7 | 0 ·25 | 0 ·0047715 | 16 36 ·6 | 16 33 ·1 | 60 57 ·4 | 60 |
| 14 | 52 57 51 ·4 | 0 ·31 | 0 ·0048627 | 16 28 ·5 | 16 22 ·9 | 60 27 ·4 | 60 |
| 15 | 53 55 41 ·6 | 0 ·33 | 0 ·0049520 | 16 16 ·4 | 16 9 ·3 | 59 43 ·1 | 59 |
| 16 | 54 53 30 ·2 | 0 ·33 | 0 ·0050393 | 16 1 ·8 | 15 54 ·0 | 58 49 ·5 | 58 |
| 17 | 55 51 17 ·2 | 0 ·30 | 0 ·0051246 | 15 46 ·1 | 15 38 ·4 | 57 52 ·1 | 57 |
| 18 | 56 49 2 ·6 | 0 ·24 | 0 ·0052079 | 15 30 ·9 | 15 23 ·7 | 56 56 ·1 | 56 |
| 19 | 57 46 46 ·4 | 0 ·15 | 0 ·0052894 | 15 17 ·1 | 15 10 ·9 | 56 5 ·4 | 55 |
| 20 | 58 44 28 ·5 | N. 0 ·04 | 0 ·0053693 | 15 5 ·3 | 15 0 ·4 | 55 22 ·2 | 55 |
| 21 | 59 42 8 ·9 | S. 0 ·09 | 0 ·0054475 | 14 56 ·1 | 14 52 ·4 | 54 48 ·4 | 54 |
| 22 | 60 39 47 ·7 | 0 ·22 | 0 ·0055242 | 14 49 ·4 | 14 47 ·0 | 54 23 ·9 | 54 |
| 23 | 61 37 25 ·0 | 0 ·35 | 0 ·0055995 | 14 45 ·2 | 14 43 ·9 | 54 8 ·4 | 54 |
| 24 | 62 35 0 ·9 | 0 ·47 | 0 ·0056736 | 14 43 ·2 | 14 43 ·1 | 54 1 ·2 | 54 |
| 25 | 63 32 35 ·4 | 0 ·58 | 0 ·0057466 | 14 43 ·4 | 14 44 ·1 | 54 1 ·7 | 54 |
| 26 | 64 30 8 ·6 | 0 ·67 | 0 ·0058183 | 14 45 ·3 | 14 46 ·8 | 54 8 ·7 | 54 |
| 27 | 65 27 40 ·6 | 0 ·74 | 0 ·0058890 | 14 48 ·7 | 14 51 ·0 | 54 21 ·4 | 54 |
| 28 | 66 25 11 ·5 | 0 ·77 | 0 ·0059585 | 14 53 ·6 | 14 56 ·4 | 54 39 ·1 | 54 |
| 29 | 67 22 41 ·2 | 0 ·78 | 0 ·0060268 | 14 59 ·6 | 15 2 ·9 | 55 1 ·1 | 55 |
| 30 | 68 20 10 ·1 | 0 ·76 | 0 ·0060940 | 15 6 ·5 | 15 10 ·4 | 55 26 ·7 | 55 |
| 31 | 69 17 38 ·1 | 0 ·71 | 0 ·0061599 | 15 14 ·4 | 15 18 ·6 | 55 55 ·5 | 56 |
| 32 | 70 15 5 ·2 | S. 0 ·63 | 0 ·0062245 | 15 23 ·0 | 15 27 ·7 | 56 27 ·3 | 56 |

## MEAN TIME.

| Day of the Week. | Day of the Month. | THE MOON'S Longitude. Noon. | Longitude. Midnight. | Latitude. Noon. | Latitude. Midnight. | Age. Noon. | Meridian Passage. |
|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | ° ′ ″ | ° ′ ″ | ° ′ ″ | d | h m |
| ed. | 1 | 250 4 5·4 | 256 9 41·4 | S.4 58 36·1 | S.5 4 40·6 | 17·5 | 14 25·8 |
| ur. | 2 | 262 17 37·0 | 268 28 8·0 | 5 7 18·3 | 5 6 22·4 | 18·5 | 15 19·5 |
| id. | 3 | 274 41 30·2 | 280 58 0·9 | 5 1 49·2 | 4 53 37·1 | 19·5 | 16 14·0 |
| t. | 4 | 287 18 0·1 | 293 41 46·6 | 4 41 45·3 | 4 26 16·2 | 20·5 | 17 7·9 |
| n. | 5 | 300 9 42·1 | 306 42 7·6 | 4 7 13·9 | 3 44 44·9 | 21·5 | 18 0·2 |
| on. | 6 | 313 19 24·3 | 320 1 51·6 | 3 18 59·6 | 2 50 10·0 | 22·5 | 18 50·6 |
| es. | 7 | 326 49 47·0 | 333 43 23·5 | 2 18 33·1 | 1 44 29·9 | 23·5 | 19 39·6 |
| ed. | 8 | 340 42 51·4 | 347 48 11·7 | S.1 8 24·9 | S.0 30 47·6 | 24·5 | 20 28·0 |
| ur. | 9 | 354 59 20·7 | 2 16 2·2 | N.0 7 48·0 | N.0 46 43·8 | 25·5 | 21 17·3 |
| id. | 10 | 9 37 52·2 | 17 4 13·8 | 1 25 18·0 | 2 2 46·4 | 26·5 | 22 8·7 |
| t. | 11 | 24 34 20·4 | 32 7 13·5 | 2 38 23·3 | 3 11 24·8 | 27·5 | 23 3·8 |
| n. | 12 | 39 41 46·3 | 47 16 44·2 | 3 41 8·8 | 4 6 57·9 | 28·5 | ☌ |
| on. | 13 | 54 50 50·2 | 62 22 45·7 | 4 28 21·7 | 4 44 58·3 | 0·2 | 0 3·1 |
| es. | 14 | 69 51 17·1 | 77 15 16·5 | 4 56 32·6 | 5 3 0·4 | 1·2 | 1 6·2 |
| ed. | 15 | 84 33 45·8 | 91 45 58·1 | 5 4 24·5 | 5 0 55·9 | 2·2 | 2 10·8 |
| ur. | 16 | 98 51 19·1 | 105 49 28·5 | 4 52 50·6 | 4 40 30·0 | 3·2 | 3 13·9 |
| id. | 17 | 112 40 16·2 | 119 23 45·0 | 4 24 18·8 | 4 4 42·4 | 4·2 | 4 12·7 |
| t. | 18 | 126 0 7·6 | 132 29 43·4 | 3 42 8·0 | 3 17 2·1 | 5·2 | 5 6·0 |
| n. | 19 | 138 53 0·4 | 145 10 30·6 | 2 49 50·5 | 2 20 58·1 | 6·2 | 5 54·1 |
| on. | 20 | 151 22 49·5 | 157 30 35·7 | 1 50 48·6 | 1 19 43·1 | 7·2 | 6 37·9 |
| es. | 21 | 163 34 28·6 | 169 35 7·4 | N.0 48 3·7 | N.0 16 9·5 | 8·2 | 7 18·8 |
| ed. | 22 | 175 33 11·3 | 181 29 17·9 | S.0 15 40·0 | S.0 47 8·0 | 9·2 | 7 58·2 |
| ur. | 23 | 187 24 4·0 | 193 18 3·4 | 1 17 56·0 | 1 47 47·5 | 10·2 | 8 37·1 |
| id. | 24 | 199 11 47·8 | 205 5 45·8 | 2 16 25·7 | 2 43 34·8 | 11·2 | 9 16·9 |
| t. | 25 | 211 0 24·1 | 216 56 5·2 | 3 8 58·5 | 3 32 21·8 | 12·2 | 9 58·5 |
| n. | 26 | 222 53 9·0 | 228 51 52·4 | 3 53 29·5 | 4 12 7·4 | 13·2 | 10 42·8 |
| on. | 27 | 234 52 30·2 | 240 55 12·8 | 4 28 1·0 | 4 40 58·7 | 14·2 | 11 30·5 |
| es. | 28 | 247 0 9·0 | 253 7 26·8 | 4 50 48·9 | 4 57 21·5 | 15·2 | 12 21·4 |
| ed. | 29 | 259 17 10·8 | 265 29 25·7 | 5 0 28·3 | 5 0 3·6 | 16·2 | 13 15·0 |
| hur. | 30 | 271 44 15·1 | 278 1 43·6 | 4 56 3·5 | 4 48 25·9 | 17·2 | 14 9·8 |
| rid. | 31 | 284 21 55·1 | 290 44 55·3 | 4 37 11·5 | 4 22 24·5 | 18·2 | 15 4·2 |
| t. | 32 | 297 10 51·2 | 303 39 50·8 | S.4 4 10·2 | S.3 42 37·5 | 19·2 | 15 56·8 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *WEDNESDAY* 1. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 16 30 27 ·57 | S. 26 54 8 ·2 | 51 ·80 |
| 1 | 16 32 41 ·42 | 26 59 19 ·0 | 50 ·52 |
| 2 | 16 34 55 ·53 | 27 4 22 ·1 | 49 ·20 |
| 3 | 16 37 9 ·90 | 27 9 17 ·3 | 47 ·88 |
| 4 | 16 39 24 ·52 | 27 14 4 ·6 | 46 ·55 |
| 5 | 16 41 39 ·40 | 27 18 43 ·9 | 45 ·23 |
| 6 | 16 43 54 ·53 | 27 23 15 ·3 | 43 ·88 |
| 7 | 16 46 9 ·91 | 27 27 38 ·6 | 42 ·55 |
| 8 | 16 48 25 ·53 | 27 31 53 ·9 | 41 ·18 |
| 9 | 16 50 41 ·39 | 27 36 1 ·0 | 39 ·82 |
| 10 | 16 52 57 ·48 | 27 39 59 ·9 | 38 ·45 |
| 11 | 16 55 13 ·81 | 27 43 50 ·6 | 37 ·08 |
| 12 | 16 57 30 ·36 | 27 47 33 ·1 | 35 ·70 |
| 13 | 16 59 47 ·13 | 27 51 7 ·3 | 34 ·30 |
| 14 | 17 2 4 ·12 | 27 54 33 ·1 | 32 ·92 |
| 15 | 17 4 21 ·32 | 27 57 50 ·6 | 31 ·50 |
| 16 | 17 6 38 ·74 | 28 0 59 ·6 | 30 ·10 |
| 17 | 17 8 56 ·35 | 28 4 0 ·2 | 28 ·67 |
| 18 | 17 11 14 ·17 | 28 6 52 ·2 | 27 ·25 |
| 19 | 17 13 32 ·18 | 28 9 35 ·7 | 25 ·83 |
| 20 | 17 15 50 ·38 | 28 12 10 ·7 | 24 ·38 |
| 21 | 17 18 8 ·77 | 28 14 37 ·0 | 22 ·93 |
| 22 | 17 20 27 ·33 | 28 16 54 ·6 | 21 ·50 |
| 23 | 17 22 46 ·08 | S. 28 19 3 ·6 | 20 ·03 |
| | *THURSDAY* 2. | | |
| 0 | 17 25 4 ·99 | S. 28 21 3 ·8 | 18 ·58 |
| 1 | 17 27 24 ·07 | 28 22 55 ·3 | 17 ·10 |
| 2 | 17 29 43 ·31 | 28 24 37 ·9 | 15 ·65 |
| 3 | 17 32 2 ·70 | 28 26 11 ·8 | 14 ·17 |
| 4 | 17 34 22 ·24 | 28 27 36 ·8 | 12 ·68 |
| 5 | 17 36 41 ·93 | 28 28 52 ·9 | 11 ·20 |
| 6 | 17 39 1 ·75 | 28 30 0 ·1 | 9 ·72 |
| 7 | 17 41 21 ·71 | 28 30 58 ·4 | 8 ·22 |
| 8 | 17 43 41 ·79 | 28 31 47 ·7 | 6 ·72 |
| 9 | 17 46 1 ·99 | 28 32 28 ·0 | 5 ·23 |
| 10 | 17 48 22 ·31 | 28 32 59 ·4 | 3 ·72 |
| 11 | 17 50 42 ·74 | 28 33 21 ·7 | 2 ·22 |
| 12 | 17 53 3 ·27 | 28 33 35 ·0 | 0 ·70 |
| 13 | 17 55 23 ·90 | 28 33 39 ·2 | 0 ·80 |
| 14 | 17 57 44 ·63 | 28 33 34 ·4 | 2 ·33 |
| 15 | 18 0 5 ·43 | 28 33 20 ·4 | 3 ·85 |
| 16 | 18 2 26 ·32 | 28 32 57 ·3 | 5 ·37 |
| 17 | 18 4 47 ·29 | 28 32 25 ·1 | 6 ·88 |
| 18 | 18 7 8 ·32 | 28 31 43 ·8 | 8 ·42 |
| 19 | 18 9 29 ·41 | 28 30 53 ·3 | 9 ·93 |
| 20 | 18 11 50 ·56 | 28 29 53 ·7 | 11 ·48 |
| 21 | 18 14 11 ·77 | 28 28 44 ·9 | 13 ·00 |
| 22 | 18 16 33 ·01 | 28 27 26 ·9 | 14 ·53 |
| 23 | 18 18 54 ·30 | 28 25 59 ·7 | 16 ·07 |
| 24 | 18 21 15 ·62 | S. 28 24 23 ·3 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *FRIDAY* 3. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 18 21 15 ·62 | S. 28 24 23 ·3 | 17 ·60 |
| 1 | 18 23 36 ·97 | 28 22 37 ·7 | 19 ·13 |
| 2 | 18 25 58 ·34 | 28 20 42 ·9 | 20 ·65 |
| 3 | 18 28 19 ·72 | 28 18 39 ·0 | 22 ·20 |
| 4 | 18 30 41 ·12 | 28 16 25 ·8 | 23 ·75 |
| 5 | 18 33 2 ·52 | 28 14 3 ·3 | 25 ·27 |
| 6 | 18 35 23 ·92 | 28 11 31 ·7 | 26 ·80 |
| 7 | 18 37 45 ·31 | 28 8 50 ·9 | 28 ·35 |
| 8 | 18 40 6 ·69 | 28 6 0 ·8 | 29 ·87 |
| 9 | 18 42 28 ·05 | 28 3 1 ·6 | 31 ·42 |
| 10 | 18 44 49 ·39 | 27 59 53 ·1 | 32 ·95 |
| 11 | 18 47 10 ·70 | 27 56 35 ·4 | 34 ·47 |
| 12 | 18 49 31 ·98 | 27 53 8 ·6 | 36 ·02 |
| 13 | 18 51 53 ·22 | 27 49 32 ·5 | 37 ·53 |
| 14 | 18 54 14 ·42 | 27 45 47 ·3 | 39 ·07 |
| 15 | 18 56 35 ·56 | 27 41 52 ·9 | 40 ·58 |
| 16 | 18 58 56 ·65 | 27 37 49 ·4 | 42 ·11 |
| 17 | 19 1 17 ·68 | 27 33 36 ·7 | 43 ·63 |
| 18 | 19 3 38 ·65 | 27 29 14 ·9 | 45 ·15 |
| 19 | 19 5 59 ·54 | 27 24 44 ·0 | 46 ·65 |
| 20 | 19 8 20 ·36 | 27 20 4 ·1 | 48 ·18 |
| 21 | 19 10 41 ·10 | 27 15 15 ·0 | 49 ·64 |
| 22 | 19 13 1 ·76 | 27 10 16 ·9 | 51 ·19 |
| 23 | 19 15 22 ·32 | S. 27 5 9 ·8 | 52 ·70 |
| | *SATURDAY* 4. | | |
| 0 | 19 17 42 ·79 | S. 26 59 53 ·6 | 54 ·18 |
| 1 | 19 20 3 ·16 | 26 54 28 ·5 | 55 ·64 |
| 2 | 19 22 23 ·42 | 26 48 54 ·4 | 57 ·19 |
| 3 | 19 24 43 ·58 | 26 43 11 ·3 | 58 ·65 |
| 4 | 19 27 3 ·62 | 26 37 19 ·4 | 60 ·15 |
| 5 | 19 29 23 ·55 | 26 31 18 ·5 | 61 ·62 |
| 6 | 19 31 43 ·36 | 26 25 8 ·8 | 63 ·10 |
| 7 | 19 34 3 ·05 | 26 18 50 ·2 | 64 ·57 |
| 8 | 19 36 22 ·61 | 26 12 22 ·8 | 66 ·02 |
| 9 | 19 38 42 ·05 | 26 5 46 ·7 | 67 ·44 |
| 10 | 19 41 1 ·34 | 25 59 1 ·8 | 68 ·95 |
| 11 | 19 43 20 ·50 | 25 52 8 ·1 | 70 ·38 |
| 12 | 19 45 39 ·52 | 25 45 5 ·8 | 71 ·83 |
| 13 | 19 47 58 ·40 | 25 37 54 ·8 | 73 ·27 |
| 14 | 19 50 17 ·13 | 25 30 35 ·2 | 74 ·70 |
| 15 | 19 52 35 ·71 | 25 23 7 ·0 | 76 ·12 |
| 16 | 19 54 54 ·13 | 25 15 30 ·2 | 77 ·55 |
| 17 | 19 57 12 ·40 | 25 7 44 ·9 | 78 ·95 |
| 18 | 19 59 30 ·52 | 24 59 51 ·2 | 80 ·27 |
| 19 | 20 1 48 ·47 | 24 51 49 ·0 | 81 ·78 |
| 20 | 20 4 6 ·26 | 24 43 38 ·3 | 83 ·12 |
| 21 | 20 6 23 ·89 | 24 35 19 ·4 | 84 ·57 |
| 22 | 20 8 41 ·35 | 24 26 52 ·0 | 85 ·93 |
| 23 | 20 10 58 ·63 | 24 18 16 ·4 | 87 ·20 |
| 24 | 20 13 15 ·75 | S. 24 9 32 ·6 | |

## MEAN TIME.

### E MOON'S RIGHT ASCENSION AND DECLINATION.

| scension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|
| *SUNDAY* 5. | | |
| s | ° ′ ″ | ″ |
| 15 ·75 | S. 24 9 32 ·6 | 88 ·68 |
| 32 ·69 | 24 0 40 ·5 | 90 ·03 |
| 49 ·46 | 23 51 40 ·3 | 91 ·38 |
| 6 ·05 | 23 42 32 ·0 | 92 ·73 |
| 22 ·46 | 23 33 15 ·6 | 94 ·07 |
| 38 ·69 | 23 23 51 ·2 | 95 ·40 |
| 54 ·75 | 23 14 18 ·8 | 96 ·73 |
| 10 ·62 | 23 4 38 ·4 | 98 ·03 |
| 26 ·31 | 22 54 50 ·2 | 99 ·33 |
| 41 ·82 | 22 44 54 ·2 | 100 ·65 |
| 57 ·15 | 22 34 50 ·3 | 101 ·92 |
| 12 ·29 | 22 24 38 ·8 | 103 ·22 |
| 27 ·25 | 22 14 19 ·5 | 104 ·48 |
| 42 ·02 | 22 3 52 ·6 | 105 ·75 |
| 56 ·61 | 21 53 18 ·1 | 107 ·00 |
| 11 ·02 | 21 42 36 ·1 | 108 ·23 |
| 25 ·24 | 21 31 46 ·7 | 109 ·50 |
| 39 ·27 | 21 20 49 ·7 | 110 ·72 |
| 53 ·12 | 21 9 45 ·4 | 111 ·93 |
| 6 ·79 | 20 58 33 ·8 | 113 ·15 |
| 20 ·27 | 20 47 14 ·9 | 114 ·35 |
| 33 ·57 | 20 35 48 ·8 | 115 ·55 |
| 46 ·69 | 20 24 15 ·5 | 116 ·73 |
| 59 ·62 | S. 20 12 35 ·1 | 117 ·92 |
| *MONDAY* 6. | | |
| 12 ·38 | S. 20 0 47 ·6 | 119 ·08 |
| 24 ·95 | 19 48 53 ·1 | 120 ·23 |
| 37 ·35 | 19 36 51 ·7 | 121 ·38 |
| 49 ·57 | 19 24 43 ·4 | 122 ·52 |
| 1 ·61 | 19 12 28 ·3 | 123 ·65 |
| 13 ·48 | 19 0 6 ·4 | 124 ·77 |
| 25 ·17 | 18 47 37 ·8 | 125 ·88 |
| 36 ·69 | 18 35 2 ·5 | 126 ·98 |
| 48 ·05 | 18 22 20 ·6 | 128 ·07 |
| 59 ·23 | 18 9 32 ·2 | 129 ·13 |
| 10 ·25 | 17 56 37 ·4 | 130 ·22 |
| 21 ·11 | 17 43 36 ·1 | 131 ·27 |
| 31 ·80 | 17 30 28 ·5 | 132 ·32 |
| 42 ·34 | 17 17 14 ·6 | 133 ·35 |
| 52 ·71 | 17 3 54 ·5 | 134 ·38 |
| 2 ·94 | 16 50 28 ·2 | 135 ·40 |
| 13 ·01 | 16 36 55 ·8 | 136 ·40 |
| 22 ·93 | 16 23 17 ·4 | 137 ·40 |
| 32 ·71 | 16 9 33 ·0 | 138 ·38 |
| 42 ·34 | 15 55 42 ·7 | 139 ·37 |
| 51 ·82 | 15 41 46 ·5 | 140 ·32 |
| 1 ·17 | 15 27 44 ·6 | 141 ·27 |
| 10 ·39 | 15 13 37 ·0 | 142 ·22 |
| 19 ·47 | 14 59 23 ·7 | 143 ·13 |
| 28 ·42 | S. 14 45 4 ·9 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 7. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 21 59 28 42 | S. 14 45 4 ·9 | 144 ·05 |
| 1 | 22 1 37 ·24 | 14 30 40 ·6 | 144 ·97 |
| 2 | 22 3 45 ·95 | 14 16 10 ·8 | 145 ·87 |
| 3 | 22 5 54 ·53 | 14 1 35 ·6 | 146 ·75 |
| 4 | 22 8 3 ·00 | 13 46 55 ·1 | 147 ·62 |
| 5 | 22 10 11 ·35 | 13 32 9 ·4 | 148 ·47 |
| 6 | 22 12 19 ·60 | 13 17 18 ·6 | 149 ·33 |
| 7 | 22 14 27 ·74 | 13 2 22 ·6 | 150 ·17 |
| 8 | 22 16 35 ·77 | 12 47 21 ·6 | 151 ·00 |
| 9 | 22 18 43 ·71 | 12 32 15 ·6 | 151 ·80 |
| 10 | 22 20 51 ·56 | 12 17 4 ·8 | 152 ·62 |
| 11 | 22 22 59 ·32 | 12 1 49 ·1 | 153 ·40 |
| 12 | 22 25 6 ·99 | 11 46 28 ·7 | 154 ·18 |
| 13 | 22 27 14 ·58 | 11 31 3 ·6 | 154 ·95 |
| 14 | 22 29 22 ·10 | 11 15 33 ·9 | 155 ·70 |
| 15 | 22 31 29 ·54 | 10 59 59 ·7 | 156 ·43 |
| 16 | 22 33 36 ·92 | 10 44 21 ·1 | 157 ·18 |
| 17 | 22 35 44 ·23 | 10 28 38 ·0 | 157 ·88 |
| 18 | 22 37 51 ·47 | 10 12 50 ·7 | 158 ·60 |
| 19 | 22 39 58 ·66 | 9 56 59 ·1 | 159 ·28 |
| 20 | 22 42 5 ·80 | 9 41 3 ·4 | 159 ·97 |
| 21 | 22 44 12 ·89 | 9 25 3 ·6 | 160 ·63 |
| 22 | 22 46 19 ·94 | 9 8 59 ·8 | 161 ·28 |
| 23 | 22 48 26 ·95 | S. 8 52 52 ·1 | 161 ·92 |
| | *WEDNESDAY* 8. | | |
| 0 | 22 50 33 ·93 | S. 8 36 40 ·6 | 162 ·55 |
| 1 | 22 52 40 ·87 | 8 20 25 ·3 | 163 ·17 |
| 2 | 22 54 47 ·79 | 8 4 6 ·3 | 163 ·77 |
| 3 | 22 56 54 ·69 | 7 47 43 ·7 | 164 ·35 |
| 4 | 22 59 1 ·58 | 7 31 17 ·6 | 164 ·92 |
| 5 | 23 1 8 ·46 | 7 14 48 ·1 | 165 ·48 |
| 6 | 23 3 15 ·33 | 6 58 15 ·2 | 166 ·03 |
| 7 | 23 5 22 ·20 | 6 41 39 ·0 | 166 ·57 |
| 8 | 23 7 29 ·07 | 6 24 59 ·6 | 167 ·08 |
| 9 | 23 9 35 ·96 | 6 8 17 ·1 | 167 ·58 |
| 10 | 23 11 42 ·86 | 5 51 31 ·6 | 168 ·08 |
| 11 | 23 13 49 ·77 | 5 34 43 ·1 | 168 ·55 |
| 12 | 23 15 56 ·72 | 5 17 51 ·8 | 169 ·02 |
| 13 | 23 18 3 ·70 | 5 0 57 ·7 | 169 ·47 |
| 14 | 23 20 10 ·71 | 4 44 0 ·9 | 169 ·90 |
| 15 | 23 22 17 ·76 | 4 27 1 ·5 | 170 ·32 |
| 16 | 23 24 24 ·86 | 4 9 59 ·6 | 170 ·72 |
| 17 | 23 26 32 ·02 | 3 52 55 ·3 | 171 ·12 |
| 18 | 23 28 39 ·23 | 3 35 48 ·6 | 171 ·47 |
| 19 | 23 30 46 ·50 | 3 18 39 ·8 | 171 ·83 |
| 20 | 23 32 53 ·84 | 3 1 28 ·8 | 172 ·18 |
| 21 | 23 35 1 ·25 | 2 44 15 ·7 | 172 ·50 |
| 22 | 23 37 8 ·74 | 2 27 0 ·7 | 172 ·82 |
| 23 | 23 39 16 ·32 | 2 9 43 ·8 | 173 ·12 |
| 24 | 23 41 23 ·98 | S. 1 52 25 ·1 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *THURSDAY* 9. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 23 41 23 ·98 | S. 1 52 25 ·1 | 173 ·38 |
| 1 | 23 43 31 ·74 | 1 35 4 ·8 | 173 ·65 |
| 2 | 23 45 39 ·60 | 1 17 42 ·9 | 173 ·90 |
| 3 | 23 47 47 ·56 | 1 0 19 ·5 | 174 ·13 |
| 4 | 23 49 55 ·64 | 0 42 54 ·7 | 174 ·33 |
| 5 | 23 52 3 ·83 | 0 25 28 ·7 | 174 ·55 |
| 6 | 23 54 12 ·14 | S. 0 8 1 ·4 | 174 ·72 |
| 7 | 23 56 20 ·58 | N. 0 9 26 ·9 | 174 ·88 |
| 8 | 23 58 29 ·15 | 0 26 56 ·2 | 175 ·03 |
| 9 | 0 0 37 ·86 | 0 44 26 ·4 | 175 ·17 |
| 10 | 0 2 46 ·71 | 1 1 57 ·4 | 175 ·28 |
| 11 | 0 4 55 ·71 | 1 19 29 ·1 | 175 ·37 |
| 12 | 0 7 4 ·86 | 1 37 1 ·3 | 175 ·45 |
| 13 | 0 9 14 ·17 | 1 54 34 ·0 | 175 ·53 |
| 14 | 0 11 23 ·65 | 2 12 7 ·2 | 175 ·55 |
| 15 | 0 13 33 ·29 | 2 29 40 ·5 | 175 ·60 |
| 16 | 0 15 43 ·12 | 2 47 14 ·1 | 175 ·58 |
| 17 | 0 17 53 ·13 | 3 4 47 ·6 | 175 ·58 |
| 18 | 0 20 3 ·32 | 3 22 21 ·1 | 175 ·57 |
| 19 | 0 22 13 ·71 | 3 39 54 ·5 | 175 ·50 |
| 20 | 0 24 24 ·30 | 3 57 27 ·5 | 175 ·45 |
| 21 | 0 26 35 ·09 | 4 15 0 ·2 | 175 ·37 |
| 22 | 0 28 46 ·10 | 4 32 32 ·4 | 175 ·25 |
| 23 | 0 30 57 ·32 | N. 4 50 3 ·9 | 175 ·13 |
| | *FRIDAY* 10. | | |
| 0 | 0 33 8 ·76 | N. 5 7 34 ·7 | 174 ·98 |
| 1 | 0 35 20 ·43 | 5 25 4 ·6 | 174 ·83 |
| 2 | 0 37 32 ·33 | 5 42 33 ·6 | 174 ·65 |
| 3 | 0 39 44 ·47 | 6 0 1 ·5 | 174 ·45 |
| 4 | 0 41 56 ·86 | 6 17 28 ·2 | 174 ·23 |
| 5 | 0 44 9 ·49 | 6 34 53 ·6 | 173 ·98 |
| 6 | 0 46 22 ·38 | 6 52 17 ·5 | 173 ·73 |
| 7 | 0 48 35 ·53 | 7 9 39 ·9 | 173 ·45 |
| 8 | 0 50 48 ·94 | 7 27 0 ·6 | 173 ·17 |
| 9 | 0 53 2 ·62 | 7 44 19 ·6 | 172 ·83 |
| 10 | 0 55 16 ·57 | 8 1 36 ·6 | 172 ·48 |
| 11 | 0 57 30 ·81 | 8 18 51 ·5 | 172 ·13 |
| 12 | 0 59 45 ·33 | 8 36 4 ·3 | 171 ·75 |
| 13 | 1 2 0 ·14 | 8 53 14 ·8 | 171 ·35 |
| 14 | 1 4 15 ·24 | 9 10 22 ·9 | 170 ·93 |
| 15 | 1 6 30 ·65 | 9 27 28 ·5 | 170 ·48 |
| 16 | 1 8 46 ·36 | 9 44 31 ·4 | 170 ·02 |
| 17 | 1 11 2 ·38 | 10 1 31 ·5 | 169 ·52 |
| 18 | 1 13 18 ·72 | 10 18 28 ·6 | 169 ·03 |
| 19 | 1 15 35 ·37 | 10 35 22 ·8 | 168 ·48 |
| 20 | 1 17 52 ·35 | 10 52 13 ·7 | 167 ·93 |
| 21 | 1 20 9 ·65 | 11 9 1 ·3 | 167 ·37 |
| 22 | 1 22 27 ·29 | 11 25 45 ·5 | 166 ·78 |
| 23 | 1 24 45 ·26 | 11 42 26 ·2 | 166 ·15 |
| 24 | 1 27 3 ·57 | N. 11 59 3 ·1 | |

| Hour. | Right Ascension. | Declination. |
|---|---|---|
| | *SATURDAY* 11. | |
| | h m s | ° ′ ″ |
| 0 | 1 27 3 ·57 | N. 11 59 3 ·1 |
| 1 | 1 29 22 ·23 | 12 15 36 ·2 |
| 2 | 1 31 41 ·23 | 12 32 5 ·3 |
| 3 | 1 34 0 ·59 | 12 48 30 ·3 |
| 4 | 1 36 20 ·30 | 13 4 51 ·1 |
| 5 | 1 38 40 ·38 | 13 21 7 ·6 |
| 6 | 1 41 0 ·82 | 13 37 19 ·5 |
| 7 | 1 43 21 ·62 | 13 53 26 ·8 |
| 8 | 1 45 42 ·80 | 14 9 29 ·3 |
| 9 | 1 48 4 ·36 | 14 25 26 ·9 |
| 10 | 1 50 26 ·29 | 14 41 19 ·5 |
| 11 | 1 52 48 ·60 | 14 57 6 ·9 |
| 12 | 1 55 11 ·29 | 15 12 49 ·0 |
| 13 | 1 57 34 ·37 | 15 28 25 ·7 |
| 14 | 1 59 57 ·84 | 15 43 56 ·8 |
| 15 | 2 2 21 ·70 | 15 59 22 ·1 |
| 16 | 2 4 45 ·95 | 16 14 41 ·6 |
| 17 | 2 7 10 ·60 | 16 29 55 ·1 |
| 18 | 2 9 35 ·64 | 16 45 2 ·5 |
| 19 | 2 12 1 ·09 | 17 0 3 ·6 |
| 20 | 2 14 26 ·93 | 17 14 58 ·3 |
| 21 | 2 16 53 ·18 | 17 29 46 ·4 |
| 22 | 2 19 19 ·83 | 17 44 27 ·8 |
| 23 | 2 21 46 ·88 | N. 17 59 2 ·4 |
| | *SUNDAY* 12. | |
| 0 | 2 24 14 ·34 | N. 18 13 30 ·1 |
| 1 | 2 26 42 ·21 | 18 27 50 ·7 |
| 2 | 2 29 10 ·48 | 18 42 4 ·0 |
| 3 | 2 31 39 ·16 | 18 56 9 ·9 |
| 4 | 2 34 8 ·25 | 19 10 8 ·4 |
| 5 | 2 36 37 ·75 | 19 23 59 ·1 |
| 6 | 2 39 7 ·66 | 19 37 42 ·2 |
| 7 | 2 41 37 ·97 | 19 51 17 ·3 |
| 8 | 2 44 8 ·69 | 20 4 44 ·4 |
| 9 | 2 46 39 ·82 | 20 18 3 ·3 |
| 10 | 2 49 11 ·34 | 20 31 13 ·9 |
| 11 | 2 51 43 ·27 | 20 44 16 ·1 |
| 12 | 2 54 15 ·60 | 20 57 9 ·7 |
| 13 | 2 56 48 ·33 | 21 9 54 ·7 |
| 14 | 2 59 21 ·46 | 21 22 30 ·8 |
| 15 | 3 1 54 ·99 | 21 34 58 ·0 |
| 16 | 3 4 28 ·91 | 21 47 16 ·1 |
| 17 | 3 7 3 ·21 | 21 59 25 ·1 |
| 18 | 3 9 37 ·91 | 22 11 24 ·7 |
| 19 | 3 12 12 ·98 | 22 23 14 ·9 |
| 20 | 3 14 48 ·44 | 22 34 55 ·6 |
| 21 | 3 17 24 ·27 | 22 46 26 ·6 |
| 22 | 3 20 0 ·47 | 22 57 47 ·8 |
| 23 | 3 22 37 ·04 | 23 8 59 ·2 |
| 24 | 3 25 13 ·97 | N. 23 20 0 ·5 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. |
|---|---|---|---|
| | *MONDAY* 13. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 3 25 13 ·97 | N.23 20 0 ·5 | 108 ·53 |
| 1 | 3 27 51 ·26 | 23 30 51 ·7 | 106 ·83 |
| 2 | 3 30 28 ·90 | 23 41 32 ·7 | 105 ·10 |
| 3 | 3 33 6 ·88 | 23 52 3 ·3 | 103 ·37 |
| 4 | 3 35 45 ·21 | 24 2 23 ·5 | 101 ·62 |
| 5 | 3 38 23 ·87 | 24 12 33 ·2 | 99 ·83 |
| 6 | 3 41 2 ·86 | 24 22 32 ·2 | 98 ·03 |
| 7 | 3 43 42 ·18 | 24 32 20 ·4 | 96 ·23 |
| 8 | 3 46 21 ·81 | 24 41 57 ·8 | 94 ·40 |
| 9 | 3 49 1 ·75 | 24 51 24 ·2 | 92 ·57 |
| 10 | 3 51 41 ·98 | 25 0 39 ·6 | 90 ·72 |
| 11 | 3 54 22 ·52 | 25 9 43 ·9 | 88 ·83 |
| 12 | 3 57 3 ·34 | 25 18 36 ·9 | 86 ·95 |
| 13 | 3 59 44 ·45 | 25 27 18 ·6 | 85 ·05 |
| 14 | 4 2 25 ·82 | 25 35 48 ·9 | 83 ·13 |
| 15 | 4 5 7 ·45 | 25 44 7 ·7 | 81 ·22 |
| 16 | 4 7 49 ·34 | 25 52 15 ·0 | 79 ·27 |
| 17 | 4 10 31 ·47 | 26 0 10 ·6 | 77 ·33 |
| 18 | 4 13 13 ·84 | 26 7 54 ·6 | 75 ·35 |
| 19 | 4 15 56 ·44 | 26 15 26 ·7 | 73 ·40 |
| 20 | 4 18 39 ·24 | 26 22 47 ·1 | 71 ·40 |
| 21 | 4 21 22 ·26 | 26 29 55 ·5 | 69 ·42 |
| 22 | 4 24 5 ·48 | 26 36 52 ·0 | 67 ·40 |
| 23 | 4 26 48 ·87 | N.26 43 36 ·4 | 65 ·40 |
| | *TUESDAY* 14. | | |
| 0 | 4 29 32 ·45 | N.26 50 8 ·8 | 63 ·37 |
| 1 | 4 32 16 ·19 | 26 56 29 ·0 | 61 ·35 |
| 2 | 4 35 0 ·09 | 27 2 37 ·1 | 59 ·30 |
| 3 | 4 37 44 ·13 | 27 8 32 ·9 | 57 ·27 |
| 4 | 4 40 28 ·30 | 27 14 16 ·5 | 55 ·20 |
| 5 | 4 43 12 ·59 | 27 19 47 ·7 | 53 ·15 |
| 6 | 4 45 57 ·00 | 27 25 6 ·6 | 51 ·08 |
| 7 | 4 48 41 ·50 | 27 30 13 ·1 | 49 ·02 |
| 8 | 4 51 26 ·08 | 27 35 7 ·2 | 46 ·95 |
| 9 | 4 54 10 ·74 | 27 39 48 ·9 | 44 ·87 |
| 10 | 4 56 55 ·47 | 27 44 18 ·1 | 42 ·78 |
| 11 | 4 59 40 ·24 | 27 48 34 ·8 | 40 ·70 |
| 12 | 5 2 25 ·06 | 27 52 39 ·0 | 38 ·60 |
| 13 | 5 5 9 ·91 | 27 56 30 ·6 | 36 ·52 |
| 14 | 5 7 54 ·76 | 28 0 9 ·7 | 34 ·43 |
| 15 | 5 10 39 ·62 | 28 3 36 ·3 | 32 ·33 |
| 16 | 5 13 24 ·47 | 28 6 50 ·3 | 30 ·25 |
| 17 | 5 16 9 ·30 | 28 9 51 ·8 | 28 ·15 |
| 18 | 5 18 54 ·09 | 28 12 40 ·7 | 26 ·07 |
| 19 | 5 21 38 ·84 | 28 15 17 ·1 | 23 ·98 |
| 20 | 5 24 23 ·52 | 28 17 41 ·0 | 21 ·88 |
| 21 | 5 27 8 ·13 | 28 19 52 ·3 | 19 ·82 |
| 22 | 5 29 52 ·66 | 28 21 51 ·2 | 17 ·72 |
| 23 | 5 32 37 ·10 | 28 23 37 ·5 | 15 ·65 |
| 24 | 5 35 21 ·42 | N.28 25 11 ·4 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. |
|---|---|---|---|
| | *WEDNESDAY* 15. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 5 35 21 ·42 | N.28 25 11 ·4 | 13 ·57 |
| 1 | 5 38 5 ·62 | 28 26 32 ·8 | 11 ·50 |
| 2 | 5 40 49 ·69 | 28 27 41 ·8 | 9 ·45 |
| 3 | 5 43 33 ·61 | 28 28 38 ·5 | 7 ·38 |
| 4 | 5 46 17 ·37 | 28 29 22 ·8 | 5 ·32 |
| 5 | 5 49 0 ·96 | 28 29 54 ·7 | 3 ·28 |
| 6 | 5 51 44 ·36 | 28 30 14 ·4 | 1 ·25 |
| 7 | 5 54 27 ·58 | 28 30 21 ·9 | 0 ·78 |
| 8 | 5 57 10 ·59 | 28 30 17 ·2 | 2 ·82 |
| 9 | 5 59 53 ·38 | 28 30 0 ·3 | 4 ·83 |
| 10 | 6 2 35 ·95 | 28 29 31 ·3 | 6 ·83 |
| 11 | 6 5 18 ·27 | 28 28 50 ·3 | 8 ·83 |
| 12 | 6 8 0 ·34 | 28 27 57 ·3 | 10 ·83 |
| 13 | 6 10 42 ·15 | 28 26 52 ·3 | 12 ·80 |
| 14 | 6 13 23 ·68 | 28 25 35 ·5 | 14 ·77 |
| 15 | 6 16 4 ·93 | 28 24 6 ·9 | 16 ·73 |
| 16 | 6 18 45 ·89 | 28 22 26 ·5 | 18 ·67 |
| 17 | 6 21 26 ·54 | 28 20 34 ·5 | 20 ·60 |
| 18 | 6 24 6 ·87 | 28 18 30 ·9 | 22 ·53 |
| 19 | 6 26 46 ·88 | 28 16 15 ·7 | 24 ·43 |
| 20 | 6 29 26 ·56 | 28 13 49 ·1 | 26 ·33 |
| 21 | 6 32 5 ·89 | 28 11 11 ·1 | 28 ·22 |
| 22 | 6 34 44 ·88 | 28 8 21 ·8 | 30 ·08 |
| 23 | 6 37 23 ·50 | N.28 5 21 ·3 | 31 ·95 |
| | *THURSDAY* 16. | | |
| 0 | 6 40 1 ·75 | N.28 2 9 ·6 | 33 ·78 |
| 1 | 6 42 39 ·62 | 27 58 46 ·9 | 35 ·62 |
| 2 | 6 45 17 ·10 | 27 55 13 ·2 | 37 ·43 |
| 3 | 6 47 54 ·19 | 27 51 28 ·6 | 39 ·22 |
| 4 | 6 50 30 ·87 | 27 47 33 ·3 | 41 ·00 |
| 5 | 6 53 7 ·14 | 27 43 27 ·3 | 42 ·78 |
| 6 | 6 55 42 ·99 | 27 39 10 ·6 | 44 ·52 |
| 7 | 6 58 18 ·41 | 27 34 43 ·5 | 46 ·27 |
| 8 | 7 0 53 ·40 | 27 30 5 ·9 | 47 ·97 |
| 9 | 7 3 27 ·96 | 27 25 18 ·1 | 49 ·68 |
| 10 | 7 6 2 ·06 | 27 20 20 ·0 | 51 ·38 |
| 11 | 7 8 35 ·71 | 27 15 11 ·7 | 53 ·03 |
| 12 | 7 11 8 ·91 | 27 9 53 ·5 | 54 ·68 |
| 13 | 7 13 41 ·64 | 27 4 25 ·4 | 56 ·33 |
| 14 | 7 16 13 ·90 | 26 58 47 ·4 | 57 ·93 |
| 15 | 7 18 45 ·68 | 26 52 59 ·8 | 59 ·55 |
| 16 | 7 21 16 ·98 | 26 47 2 ·5 | 61 ·13 |
| 17 | 7 23 47 ·80 | 26 40 55 ·7 | 62 ·70 |
| 18 | 7 26 18 ·14 | 26 34 39 ·5 | 64 ·25 |
| 19 | 7 28 47 ·98 | 26 28 14 ·0 | 65 ·77 |
| 20 | 7 31 17 ·32 | 26 21 39 ·4 | 67 ·30 |
| 21 | 7 33 46 ·16 | 26 14 55 ·6 | 68 ·80 |
| 22 | 7 36 14 ·50 | 26 8 2 ·8 | 70 ·28 |
| 23 | 7 38 42 ·34 | 26 1 1 ·1 | 71 ·73 |
| 24 | 7 41 9 ·66 | N.25 53 50 ·7 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *FRIDAY* 17. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 7 41 9·66 | N.25 53 50·7 | 73·18 |
| 1 | 7 43 36·47 | 25 46 31·6 | 74·62 |
| 2 | 7 46 2·76 | 25 39 3·9 | 76·02 |
| 3 | 7 48 28·54 | 25 31 27·8 | 77·42 |
| 4 | 7 50 53·80 | 25 23 43·3 | 78·78 |
| 5 | 7 53 18·55 | 25 15 50·6 | 80·13 |
| 6 | 7 55 42·77 | 25 7 49·8 | 81·47 |
| 7 | 7 58 6·46 | 24 59 41·0 | 82·80 |
| 8 | 8 0 29·64 | 24 51 24·2 | 84·08 |
| 9 | 8 2 52·29 | 24 42 59·7 | 85·37 |
| 10 | 8 5 14·41 | 24 34 27·5 | 86·63 |
| 11 | 8 7 36·02 | 24 25 47·7 | 87·88 |
| 12 | 8 9 57·09 | 24 17 0·4 | 89·10 |
| 13 | 8 12 17·64 | 24 8 5·8 | 90·32 |
| 14 | 8 14 37·66 | 23 59 3·9 | 91·50 |
| 15 | 8 16 57·16 | 23 49 54·9 | 92·67 |
| 16 | 8 19 16·14 | 23 40 38·9 | 93·83 |
| 17 | 8 21 34·59 | 23 31 15·9 | 94·98 |
| 18 | 8 23 52·51 | 23 21 46·0 | 96·08 |
| 19 | 8 26 9·92 | 23 12 9·5 | 97·20 |
| 20 | 8 28 26·80 | 23 2 26·3 | 98·30 |
| 21 | 8 30 43·17 | 22 52 36·5 | 99·37 |
| 22 | 8 32 59·02 | 22 42 40·3 | 100·42 |
| 23 | 8 35 14·35 | N.22 32 37·8 | 101·45 |
| | *SATURDAY* 18. | | |
| 0 | 8 37 29·16 | N.22 22 29·1 | 102·48 |
| 1 | 8 39 43·46 | 22 12 14·2 | 103·48 |
| 2 | 8 41 57·25 | 22 1 53·3 | 104·47 |
| 3 | 8 44 10·54 | 21 51 26·5 | 105·45 |
| 4 | 8 46 23·32 | 21 40 53·8 | 106·40 |
| 5 | 8 48 35·59 | 21 30 15·4 | 107·33 |
| 6 | 8 50 47·37 | 21 19 31·4 | 108·27 |
| 7 | 8 52 58·64 | 21 8 41·8 | 109·17 |
| 8 | 8 55 9·43 | 20 57 46·8 | 110·07 |
| 9 | 8 57 19·72 | 20 46 46·4 | 110·93 |
| 10 | 8 59 29·52 | 20 35 40·8 | 111·80 |
| 11 | 9 1 38·84 | 20 24 30·0 | 112·65 |
| 12 | 9 3 47·68 | 20 13 14·1 | 113·48 |
| 13 | 9 5 56·04 | 20 1 53·2 | 114·28 |
| 14 | 9 8 3·93 | 19 50 27·5 | 115·10 |
| 15 | 9 10 11·35 | 19 38 56·9 | 115·87 |
| 16 | 9 12 18·30 | 19 27 21·7 | 116·65 |
| 17 | 9 14 24·79 | 19 15 41·8 | 117·40 |
| 18 | 9 16 30·81 | 19 3 57·4 | 118·15 |
| 19 | 9 18 36·39 | 18 52 8·5 | 118·88 |
| 20 | 9 20 41·51 | 18 40 15·2 | 119·58 |
| 21 | 9 22 46·19 | 18 28 17·7 | 120·30 |
| 22 | 9 24 50·42 | 18 16 15·9 | 120·97 |
| 23 | 9 26 54·22 | 18 4 10·1 | 121·65 |
| 24 | 9 28 57·58 | N.17 52 0·2 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SUNDAY* 19. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 9 28 57·58 | N.17 52 0·2 | 122·30 |
| 1 | 9 31 0·51 | 17 39 46·4 | 122·97 |
| 2 | 9 33 3·02 | 17 27 28·6 | 123·58 |
| 3 | 9 35 5·11 | 17 15 7·1 | 124·20 |
| 4 | 9 37 6·78 | 17 2 41·9 | 124·82 |
| 5 | 9 39 8·04 | 16 50 13·0 | 125·40 |
| 6 | 9 41 8·89 | 16 37 40·6 | 125·98 |
| 7 | 9 43 9·34 | 16 25 4·7 | 126·57 |
| 8 | 9 45 9·39 | 16 12 25·3 | 127·12 |
| 9 | 9 47 9·05 | 15 59 42·6 | 127·65 |
| 10 | 9 49 8·33 | 15 46 56·7 | 128·18 |
| 11 | 9 51 7·21 | 15 34 7·6 | 128·72 |
| 12 | 9 53 5·72 | 15 21 15·3 | 129·22 |
| 13 | 9 55 3·86 | 15 8 20·0 | 129·72 |
| 14 | 9 57 1·63 | 14 55 21·7 | 130·20 |
| 15 | 9 58 59·03 | 14 42 20·5 | 130·67 |
| 16 | 10 0 56·07 | 14 29 16·5 | 131·13 |
| 17 | 10 2 52·77 | 14 16 9·7 | 131·58 |
| 18 | 10 4 49·11 | 14 3 0·2 | 132·03 |
| 19 | 10 6 45·11 | 13 49 48·0 | 132·47 |
| 20 | 10 8 40·77 | 13 36 33·2 | 132·88 |
| 21 | 10 10 36·10 | 13 23 15·9 | 133·28 |
| 22 | 10 12 31·10 | 13 9 56·2 | 133·68 |
| 23 | 10 14 25·78 | N.12 56 34·1 | 134·08 |
| | *MONDAY* 20. | | |
| 0 | 10 16 20·14 | N.12 43 9·6 | 134·47 |
| 1 | 10 18 14·19 | 12 29 42·8 | 134·82 |
| 2 | 10 20 7·93 | 12 16 13·9 | 135·20 |
| 3 | 10 22 1·36 | 12 2 42·7 | 135·53 |
| 4 | 10 23 54·50 | 11 49 9·5 | 135·87 |
| 5 | 10 25 47·35 | 11 35 34·3 | 136·22 |
| 6 | 10 27 39·91 | 11 21 57·0 | 136·52 |
| 7 | 10 29 32·19 | 11 8 17·9 | 136·83 |
| 8 | 10 31 24·19 | 10 54 36·9 | 137·13 |
| 9 | 10 33 15·91 | 10 40 54·1 | 137·42 |
| 10 | 10 35 7·38 | 10 27 9·6 | 137·70 |
| 11 | 10 36 58·58 | 10 13 23·4 | 137·98 |
| 12 | 10 38 49·52 | 9 59 35·5 | 138·23 |
| 13 | 10 40 40·21 | 9 45 46·1 | 138·48 |
| 14 | 10 42 30·66 | 9 31 55·2 | 138·73 |
| 15 | 10 44 20·87 | 9 18 2·7 | 138·97 |
| 16 | 10 46 10·84 | 9 4 8·9 | 139·20 |
| 17 | 10 48 0·58 | 8 50 13·7 | 139·42 |
| 18 | 10 49 50·10 | 8 36 17·2 | 139·63 |
| 19 | 10 51 39·40 | 8 22 19·4 | 139·83 |
| 20 | 10 53 28·48 | 8 8 20·4 | 140·02 |
| 21 | 10 55 17·35 | 7 54 20·3 | 140·22 |
| 22 | 10 57 6·01 | 7 40 19·0 | 140·38 |
| 23 | 10 58 54·48 | 7 26 16·7 | 140·57 |
| 24 | 11 0 42·75 | N. 7 12 13·3 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 21. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 11 0 42 ·75 | N.7 12 13 ·3 | 140 ·73 |
| 1 | 11 2 30 ·83 | 6 58 8 ·9 | 140 ·87 |
| 2 | 11 4 18 ·73 | 6 44 3 ·7 | 141 ·03 |
| 3 | 11 6 6 ·45 | 6 29 57 ·5 | 141 ·17 |
| 4 | 11 7 53 ·99 | 6 15 50 ·5 | 141 ·30 |
| 5 | 11 9 41 ·36 | 6 1 42 ·7 | 141 ·42 |
| 6 | 11 11 28 ·57 | 5 47 34 ·2 | 141 ·53 |
| 7 | 11 13 15 ·62 | 5 33 25 ·0 | 141 ·63 |
| 8 | 11 15 2 ·51 | 5 19 15 ·2 | 141 ·75 |
| 9 | 11 16 49 ·25 | 5 5 4 ·7 | 141 ·83 |
| 10 | 11 18 35 ·85 | 4 50 53 ·7 | 141 ·92 |
| 11 | 11 20 22 ·31 | 4 36 42 ·2 | 142 ·00 |
| 12 | 11 22 8 ·63 | 4 22 30 ·2 | 142 ·07 |
| 13 | 11 23 54 ·82 | 4 8 17 ·8 | 142 ·13 |
| 14 | 11 25 40 ·89 | 3 54 5 ·0 | 142 ·18 |
| 15 | 11 27 26 ·84 | 3 39 51 ·9 | 142 ·23 |
| 16 | 11 29 12 ·68 | 3 25 38 ·5 | 142 ·27 |
| 17 | 11 30 58 ·40 | 3 11 24 ·9 | 142 ·32 |
| 18 | 11 32 44 ·02 | 2 57 11 ·0 | 142 ·33 |
| 19 | 11 34 29 ·54 | 2 42 57 ·0 | 142 ·37 |
| 20 | 11 36 14 ·96 | 2 28 42 ·8 | 142 ·37 |
| 21 | 11 38 0 ·29 | 2 14 28 ·6 | 142 ·38 |
| 22 | 11 39 45 ·54 | 2 0 14 ·3 | 142 ·38 |
| 23 | 11 41 30 ·70 | N.1 46 0 ·0 | 142 ·37 |
| | *WEDNESDAY* 22. | | |
| 0 | 11 43 15 ·79 | N.1 31 45 ·8 | 142 ·37 |
| 1 | 11 45 0 ·80 | 1 17 31 ·6 | 142 ·33 |
| 2 | 11 46 45 ·75 | 1 3 17 ·6 | 142 ·32 |
| 3 | 11 48 30 ·64 | 0 49 3 ·7 | 142 ·28 |
| 4 | 11 50 15 ·47 | 0 34 50 ·0 | 142 ·25 |
| 5 | 11 52 0 ·24 | 0 20 36 ·5 | 142 ·18 |
| 6 | 11 53 44 ·97 | N.0 6 23 ·4 | 142 ·15 |
| 7 | 11 55 29 ·66 | S.0 7 49 ·5 | 142 ·07 |
| 8 | 11 57 14 ·31 | 0 22 1 ·9 | 142 ·02 |
| 9 | 11 58 58 ·92 | 0 36 14 ·0 | 141 ·93 |
| 10 | 12 0 43 ·51 | 0 50 25 ·6 | 141 ·85 |
| 11 | 12 2 28 ·07 | 1 4 36 ·7 | 141 ·77 |
| 12 | 12 4 12 ·61 | 1 18 47 ·3 | 141 ·67 |
| 13 | 12 5 57 ·14 | 1 32 57 ·3 | 141 ·57 |
| 14 | 12 7 41 ·66 | 1 47 6 ·7 | 141 ·45 |
| 15 | 12 9 26 ·17 | 2 1 15 ·4 | 141 ·35 |
| 16 | 12 11 10 ·68 | 2 15 23 ·5 | 141 ·22 |
| 17 | 12 12 55 ·20 | 2 29 30 ·8 | 141 ·08 |
| 18 | 12 14 39 ·72 | 2 43 37 ·3 | 140 ·97 |
| 19 | 12 16 24 ·26 | 2 57 43 ·1 | 140 ·80 |
| 20 | 12 18 8 ·81 | 3 11 47 ·9 | 140 ·67 |
| 21 | 12 19 53 ·38 | 3 25 51 ·9 | 140 ·52 |
| 22 | 12 21 37 ·98 | 3 39 55 ·0 | 140 ·33 |
| 23 | 12 23 22 ·61 | 3 53 57 ·0 | 140 ·18 |
| 24 | 12 25 7 ·28 | S.4 7 58 ·1 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *THURSDAY* 23. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 12 25 7 ·28 | S. 4 7 58 ·1 | 140 ·00 |
| 1 | 12 26 51 ·99 | 4 21 58 ·1 | 139 ·82 |
| 2 | 12 28 36 ·73 | 4 35 57 ·0 | 139 ·63 |
| 3 | 12 30 21 ·53 | 4 49 54 ·8 | 139 ·43 |
| 4 | 12 32 6 ·38 | 5 3 51 ·4 | 139 ·23 |
| 5 | 12 33 51 ·29 | 5 17 46 ·8 | 139 ·02 |
| 6 | 12 35 36 ·26 | 5 31 40 ·9 | 138 ·82 |
| 7 | 12 37 21 ·29 | 5 45 33 ·8 | 138 ·57 |
| 8 | 12 39 6 ·40 | 5 59 25 ·2 | 138 ·35 |
| 9 | 12 40 51 ·58 | 6 13 15 ·3 | 138 ·12 |
| 10 | 12 42 36 ·83 | 6 27 4 ·0 | 137 ·87 |
| 11 | 12 44 22 ·18 | 6 40 51 ·2 | 137 ·62 |
| 12 | 12 46 7 ·61 | 6 54 36 ·9 | 137 ·35 |
| 13 | 12 47 53 ·13 | 7 8 21 ·0 | 137 ·10 |
| 14 | 12 49 38 ·75 | 7 22 3 ·6 | 136 ·82 |
| 15 | 12 51 24 ·47 | 7 35 44 ·5 | 136 ·53 |
| 16 | 12 53 10 ·29 | 7 49 23 ·7 | 136 ·25 |
| 17 | 12 54 56 ·22 | 8 3 1 ·2 | 135 ·95 |
| 18 | 12 56 42 ·27 | 8 16 36 ·9 | 135 ·67 |
| 19 | 12 58 28 ·43 | 8 30 10 ·9 | 135 ·33 |
| 20 | 13 0 14 ·72 | 8 43 42 ·9 | 135 ·03 |
| 21 | 13 2 1 ·13 | 8 57 13 ·1 | 134 ·72 |
| 22 | 13 3 47 ·67 | 9 10 41 ·4 | 134 ·38 |
| 23 | 13 5 34 ·34 | S. 9 24 7 ·7 | 134 ·03 |
| | *FRIDAY* 24. | | |
| 0 | 13 7 21 ·15 | S. 9 37 31 ·9 | 133 ·70 |
| 1 | 13 9 8 ·10 | 9 50 54 ·1 | 133 ·35 |
| 2 | 13 10 55 ·20 | 10 4 14 ·2 | 132 ·98 |
| 3 | 13 12 42 ·44 | 10 17 32 ·1 | 132 ·62 |
| 4 | 13 14 29 ·84 | 10 30 47 ·8 | 132 ·25 |
| 5 | 13 16 17 ·40 | 10 44 1 ·3 | 131 ·85 |
| 6 | 13 18 5 ·12 | 10 57 12 ·4 | 131 ·47 |
| 7 | 13 19 53 ·00 | 11 10 21 ·2 | 131 ·08 |
| 8 | 13 21 41 ·06 | 11 23 27 ·7 | 130 ·65 |
| 9 | 13 23 29 ·29 | 11 36 31 ·6 | 130 ·25 |
| 10 | 13 25 17 ·69 | 11 49 33 ·1 | 129 ·83 |
| 11 | 13 27 6 ·28 | 12 2 32 ·1 | 129 ·40 |
| 12 | 13 28 55 ·05 | 12 15 28 ·5 | 128 ·95 |
| 13 | 13 30 44 ·01 | 12 28 22 ·2 | 128 ·52 |
| 14 | 13 32 33 ·17 | 12 41 13 ·3 | 128 ·07 |
| 15 | 13 34 22 ·52 | 12 54 1 ·7 | 127 ·58 |
| 16 | 13 36 12 ·07 | 13 6 47 ·2 | 127 ·13 |
| 17 | 13 38 1 ·83 | 13 19 30 ·0 | 126 ·65 |
| 18 | 13 39 51 ·79 | 13 32 9 ·9 | 126 ·15 |
| 19 | 13 41 41 ·97 | 13 44 46 ·8 | 125 ·67 |
| 20 | 13 43 32 ·36 | 13 57 20 ·8 | 125 ·17 |
| 21 | 13 45 22 ·96 | 14 9 51 ·8 | 124 ·65 |
| 22 | 13 47 13 ·79 | 14 22 19 ·7 | 124 ·13 |
| 23 | 13 49 4 ·85 | 14 34 44 ·5 | 123 ·60 |
| 24 | 13 50 56 ·13 | S. 14 47 6 ·1 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SATURDAY* 25. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 13 50 56 ·13 | S. 14 47 6 ·1 | 123 ·07 |
| 1 | 13 52 47 ·64 | 14 59 24 ·5 | 122 ·52 |
| 2 | 13 54 39 ·39 | 15 11 39 ·6 | 121 ·97 |
| 3 | 13 56 31 ·38 | 15 23 51 ·4 | 121 ·40 |
| 4 | 13 58 23 ·60 | 15 35 59 ·8 | 120 ·83 |
| 5 | 14 0 16 ·08 | 15 48 4 ·8 | 120 ·25 |
| 6 | 14 2 8 ·80 | 16 0 6 ·3 | 119 ·67 |
| 7 | 14 4 1 ·77 | 16 12 4 ·3 | 119 ·05 |
| 8 | 14 5 54 ·99 | 16 23 58 ·6 | 118 ·45 |
| 9 | 14 7 48 ·48 | 16 35 49 ·3 | 117 ·83 |
| 10 | 14 9 42 ·22 | 16 47 36 ·3 | 117 ·22 |
| 11 | 14 11 36 ·23 | 16 59 19 ·6 | 116 ·57 |
| 12 | 14 13 30 ·50 | 17 10 59 ·0 | 115 ·93 |
| 13 | 14 15 25 ·04 | 17 22 34 ·6 | 115 ·27 |
| 14 | 14 17 19 ·86 | 17 34 6 ·2 | 114 ·60 |
| 15 | 14 19 14 ·95 | 17 45 33 ·8 | 113 ·93 |
| 16 | 14 21 10 ·31 | 17 56 57 ·4 | 113 ·25 |
| 17 | 14 23 5 ·96 | 18 8 16 ·9 | 112 ·55 |
| 18 | 14 25 1 ·89 | 18 19 32 ·2 | 111 ·87 |
| 19 | 14 26 58 ·10 | 18 30 43 ·4 | 111 ·13 |
| 20 | 14 28 54 ·61 | 18 41 50 ·2 | 110 ·42 |
| 21 | 14 30 51 ·40 | 18 52 52 ·7 | 109 ·68 |
| 22 | 14 32 48 ·48 | 19 3 50 ·8 | 108 ·95 |
| 23 | 14 34 45 ·86 | S. 19 14 44 ·5 | 108 ·20 |
| | *SUNDAY* 26. | | |
| 0 | 14 36 43 ·54 | S. 19 25 33 ·7 | 107 ·43 |
| 1 | 14 38 41 ·52 | 19 36 18 ·3 | 106 ·67 |
| 2 | 14 40 39 ·79 | 19 46 58 ·3 | 105 ·88 |
| 3 | 14 42 38 ·37 | 19 57 33 ·6 | 105 ·08 |
| 4 | 14 44 37 ·25 | 20 8 4 ·1 | 104 ·30 |
| 5 | 14 46 36 ·45 | 20 18 29 ·9 | 103 ·48 |
| 6 | 14 48 35 ·95 | 20 28 50 ·8 | 102 ·65 |
| 7 | 14 50 35 ·76 | 20 39 6 ·7 | 101 ·83 |
| 8 | 14 52 35 ·88 | 20 49 17 ·7 | 100 ·98 |
| 9 | 14 54 36 ·31 | 20 59 23 ·6 | 100 ·13 |
| 10 | 14 56 37 ·07 | 21 9 24 ·4 | 99 ·28 |
| 11 | 14 58 38 ·13 | 21 19 20 ·1 | 98 ·40 |
| 12 | 15 0 39 ·52 | 21 29 10 ·5 | 97 ·52 |
| 13 | 15 2 41 ·23 | 21 38 55 ·6 | 96 ·63 |
| 14 | 15 4 43 ·26 | 21 48 35 ·4 | 95 ·73 |
| 15 | 15 6 45 ·61 | 21 58 9 ·8 | 94 ·82 |
| 16 | 15 8 48 ·28 | 22 7 38 ·7 | 93 ·90 |
| 17 | 15 10 51 ·28 | 22 17 2 ·1 | 92 ·95 |
| 18 | 15 12 54 ·60 | 22 26 19 ·8 | 92 ·02 |
| 19 | 15 14 58 ·25 | 22 35 31 ·9 | 91 ·05 |
| 20 | 15 17 2 ·22 | 22 44 38 ·2 | 90 ·10 |
| 21 | 15 19 6 ·51 | 22 53 38 ·8 | 89 ·12 |
| 22 | 15 21 11 ·14 | 23 2 33 ·5 | 88 ·13 |
| 23 | 15 23 16 ·09 | 23 11 22 ·3 | 87 ·13 |
| 24 | 15 25 21 ·36 | S. 23 20 5 ·1 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *MONDAY* 27. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 15 25 21 ·36 | S. 23 20 5 ·1 | 86 ·13 |
| 1 | 15 27 26 ·97 | 23 28 41 ·9 | 85 ·10 |
| 2 | 15 29 32 ·89 | 23 37 12 ·5 | 84 ·08 |
| 3 | 15 31 39 ·15 | 23 45 37 ·0 | 83 ·03 |
| 4 | 15 33 45 ·73 | 23 53 55 ·2 | 82 ·00 |
| 5 | 15 35 52 ·64 | 24 2 7 ·2 | 80 ·93 |
| 6 | 15 37 59 ·87 | 24 10 12 ·8 | 79 ·85 |
| 7 | 15 40 7 ·43 | 24 18 11 ·9 | 78 ·78 |
| 8 | 15 42 15 ·31 | 24 26 4 ·6 | 77 ·68 |
| 9 | 15 44 23 ·51 | 24 33 50 ·7 | 76 ·58 |
| 10 | 15 46 32 ·03 | 24 41 30 ·2 | 75 ·48 |
| 11 | 15 48 40 ·88 | 24 49 3 ·1 | 74 ·38 |
| 12 | 15 50 50 ·04 | 24 56 29 ·2 | 73 ·22 |
| 13 | 15 52 59 ·53 | 25 3 48 ·5 | 72 ·08 |
| 14 | 15 55 9 ·33 | 25 11 1 ·0 | 70 ·93 |
| 15 | 15 57 19 ·45 | 25 18 6 ·6 | 69 ·75 |
| 16 | 15 59 29 ·88 | 25 25 5 ·1 | 68 ·60 |
| 17 | 16 1 40 ·62 | 25 31 56 ·7 | 67 ·40 |
| 18 | 16 3 51 ·68 | 25 38 41 ·1 | 66 ·22 |
| 19 | 16 6 3 ·04 | 25 45 18 ·4 | 65 ·02 |
| 20 | 16 8 14 ·71 | 25 51 48 ·5 | 63 ·80 |
| 21 | 16 10 26 ·68 | 25 58 11 ·3 | 62 ·57 |
| 22 | 16 12 38 ·96 | 26 4 26 ·7 | 61 ·35 |
| 23 | 16 14 51 ·54 | S. 26 10 34 ·8 | 60 ·10 |
| | *TUESDAY* 28. | | |
| 0 | 16 17 4 ·41 | S. 26 16 35 ·4 | 58 ·85 |
| 1 | 16 19 17 ·58 | 26 22 28 ·5 | 57 ·60 |
| 2 | 16 21 31 ·04 | 26 28 14 ·1 | 56 ·32 |
| 3 | 16 23 44 ·79 | 26 33 52 ·0 | 55 ·03 |
| 4 | 16 25 58 ·83 | 26 39 22 ·2 | 53 ·75 |
| 5 | 16 28 13 ·15 | 26 44 44 ·7 | 52 ·47 |
| 6 | 16 30 27 ·75 | 26 49 59 ·5 | 51 ·13 |
| 7 | 16 32 42 ·63 | 26 55 6 ·3 | 49 ·83 |
| 8 | 16 34 57 ·77 | 27 0 5 ·3 | 48 ·52 |
| 9 | 16 37 13 ·19 | 27 4 56 ·4 | 47 ·17 |
| 10 | 16 39 28 ·87 | 27 9 39 ·4 | 45 ·83 |
| 11 | 16 41 44 ·80 | 27 14 14 ·4 | 44 ·48 |
| 12 | 16 44 1 ·00 | 27 18 41 ·3 | 43 ·12 |
| 13 | 16 46 17 ·45 | 27 23 0 ·0 | 41 ·77 |
| 14 | 16 48 34 ·14 | 27 27 10 ·6 | 40 ·37 |
| 15 | 16 50 51 ·08 | 27 31 12 ·8 | 39 ·00 |
| 16 | 16 53 8 ·26 | 27 35 6 ·8 | 37 ·62 |
| 17 | 16 55 25 ·67 | 27 38 52 ·5 | 36 ·20 |
| 18 | 16 57 43 ·31 | 27 42 29 ·7 | 34 ·82 |
| 19 | 17 0 1 ·17 | 27 45 58 ·6 | 33 ·38 |
| 20 | 17 2 19 ·25 | 27 49 18 ·9 | 31 ·98 |
| 21 | 17 4 37 ·55 | 27 52 30 ·8 | 30 ·55 |
| 22 | 17 6 56 ·06 | 27 55 34 ·1 | 29 ·10 |
| 23 | 17 9 14 ·78 | 27 58 28 ·7 | 27 ·68 |
| 24 | 17 11 33 ·69 | S. 28 1 14 ·8 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. |
|---|---|---|---|
| | *WEDNESDAY* 29. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 17 11 33 ·69 | S. 28 1 14 ·8 | 26 ·23 |
| 1 | 17 13 52 ·80 | 28 3 52 ·2 | 24 ·78 |
| 2 | 17 16 12 ·09 | 28 6 20 ·9 | 23 ·32 |
| 3 | 17 18 31 ·57 | 28 8 40 ·8 | 21 ·85 |
| 4 | 17 20 51 ·23 | 28 10 51 ·9 | 20 ·40 |
| 5 | 17 23 11 ·05 | 28 12 54 ·3 | 18 ·90 |
| 6 | 17 25 31 ·05 | 28 14 47 ·7 | 17 ·43 |
| 7 | 17 27 51 ·20 | 28 16 32 ·3 | 15 ·95 |
| 8 | 17 30 11 ·50 | 28 18 8 ·0 | 14 ·45 |
| 9 | 17 32 31 ·96 | 28 19 34 ·7 | 12 ·97 |
| 10 | 17 34 52 ·55 | 28 20 52 ·5 | 11 ·47 |
| 11 | 17 37 13 ·29 | 28 22 1 ·3 | 9 ·95 |
| 12 | 17 39 34 ·15 | 28 23 1 ·0 | 8 ·45 |
| 13 | 17 41 55 ·14 | 28 23 51 ·7 | 6 ·93 |
| 14 | 17 44 16 ·24 | 28 24 33 ·3 | 5 ·42 |
| 15 | 17 46 37 ·45 | 28 25 5 ·8 | 3 ·90 |
| 16 | 17 48 58 ·77 | 28 25 29 ·2 | 2 ·38 |
| 17 | 17 51 20 ·18 | 28 25 43 ·5 | 0 ·85 |
| 18 | 17 53 41 ·68 | 28 25 48 ·6 | 0 ·68 |
| 19 | 17 56 3 ·27 | 28 25 44 ·5 | 2 ·20 |
| 20 | 17 58 24 ·94 | 28 25 31 ·3 | 3 ·75 |
| 21 | 18 0 46 ·68 | 28 25 8 ·8 | 5 ·28 |
| 22 | 18 3 8 ·48 | 28 24 37 ·1 | 6 ·82 |
| 23 | 18 5 30 ·34 | S. 28 23 56 ·2 | 8 ·35 |
| | *THURSDAY* 30. | | |
| 0 | 18 7 52 ·26 | S. 28 23 6 ·1 | 9 ·90 |
| 1 | 18 10 14 ·22 | 28 22 6 ·7 | 11 ·43 |
| 2 | 18 12 36 ·22 | 28 20 58 ·1 | 13 ·00 |
| 3 | 18 14 58 ·26 | 28 19 40 ·1 | 14 ·52 |
| 4 | 18 17 20 ·32 | 28 18 13 ·0 | 16 ·08 |
| 5 | 18 19 42 ·40 | 28 16 36 ·5 | 17 ·62 |
| 6 | 18 22 4 ·49 | 28 14 50 ·8 | 19 ·17 |
| 7 | 18 24 26 ·59 | 28 12 55 ·8 | 20 ·72 |
| 8 | 18 26 48 ·69 | 28 10 51 ·5 | 22 ·27 |
| 9 | 18 29 10 ·78 | 28 8 37 ·9 | 23 ·80 |
| 10 | 18 31 32 ·87 | 28 6 15 ·1 | 25 ·35 |
| 11 | 18 33 54 ·93 | 28 3 43 ·0 | 26 ·90 |
| 12 | 18 36 16 ·97 | 28 1 1 ·6 | 28 ·43 |
| 13 | 18 38 38 ·98 | 27 58 11 ·0 | 29 ·98 |
| 14 | 18 41 0 ·95 | 27 55 11 ·1 | 31 ·53 |
| 15 | 18 43 22 ·88 | 27 52 1 ·9 | 33 ·05 |
| 16 | 18 45 44 ·76 | 27 48 43 ·6 | 34 ·60 |
| 17 | 18 48 6 ·58 | 27 45 16 ·0 | 36 ·12 |
| 18 | 18 50 28 ·34 | 27 41 39 ·3 | 37 ·65 |
| 19 | 18 52 50 ·03 | 27 37 53 ·4 | 39 ·18 |
| 20 | 18 55 11 ·65 | 27 33 58 ·3 | 40 ·72 |
| 21 | 18 57 33 ·20 | 27 29 54 ·0 | 42 ·23 |
| 22 | 18 59 54 ·65 | 27 25 40 ·6 | 43 ·73 |
| | 19 2 16 ·02 | 27 21 18 ·2 | 45 ·27 |
| | 4 37 ·29 | S. 27 16 46 ·6 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. |
|---|---|---|---|
| | *FRIDAY* 31. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 19 4 37 ·29 | S. 27 16 46 ·6 | 46 ·77 |
| 1 | 19 6 58 ·46 | 27 12 6 ·0 | 48 ·27 |
| 2 | 19 9 19 ·52 | 27 7 16 ·4 | 49 ·78 |
| 3 | 19 11 40 ·47 | 27 2 17 ·7 | 51 ·27 |
| 4 | 19 14 1 ·30 | 26 57 10 ·1 | 52 ·77 |
| 5 | 19 16 22 ·01 | 26 51 53 ·5 | 54 ·27 |
| 6 | 19 18 42 ·59 | 26 46 27 ·9 | 55 ·73 |
| 7 | 19 21 3 ·05 | 26 40 53 ·5 | 57 ·22 |
| 8 | 19 23 23 ·36 | 26 35 10 ·2 | 58 ·70 |
| 9 | 19 25 43 ·54 | 26 29 18 ·0 | 60 ·15 |
| 10 | 19 28 3 ·57 | 26 23 17 ·1 | 61 ·63 |
| 11 | 19 30 23 ·45 | 26 17 7 ·3 | 63 ·08 |
| 12 | 19 32 43 ·18 | 26 10 48 ·8 | 64 ·53 |
| 13 | 19 35 2 ·75 | 26 4 21 ·6 | 65 ·98 |
| 14 | 19 37 22 ·16 | 25 57 45 ·7 | 67 ·43 |
| 15 | 19 39 41 ·40 | 25 51 1 ·1 | 68 ·85 |
| 16 | 19 42 0 ·47 | 25 44 8 ·0 | 70 ·28 |
| 17 | 19 44 19 ·36 | 25 37 6 ·3 | 71 ·70 |
| 18 | 19 46 38 ·08 | 25 29 56 ·1 | 73 ·12 |
| 19 | 19 48 56 ·62 | 25 22 37 ·4 | 74 ·52 |
| 20 | 19 51 14 ·98 | 25 15 10 ·3 | 75 ·93 |
| 21 | 19 53 33 ·15 | 25 7 34 ·7 | 77 ·30 |
| 22 | 19 55 51 ·13 | 24 59 50 ·9 | 78 ·70 |
| 23 | 19 58 8 ·92 | S. 24 51 58 ·7 | 80 ·07 |
| | *SATURDAY, JUNE* 1. | | |
| 0 | 20 0 26 ·51 | S. 24 43 58 ·3 | |

### PHASES OF THE MOON.

| | d h m |
|---|---|
| ☾ *Last Quarter* - | 6 3 42 ·7 |
| ● New Moon - - | 12 19 10 ·4 |
| ☽ *First Quarter* - | 19 18 26 ·8 |
| ○ Full Moon - - | 27 22 45 ·4 |

| | d h |
|---|---|
| ☾ Perigee - - - - - - | 11 21 |
| ☾ Apogee - - - - - - | 24 10 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III^h. | P.L. of diff. | VI^h. | P.L. of diff. | IX^h. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 1 | Mars | W. | 88 46 47 | 3008 | 90 16 50 | 3002 | 91 47 0 | 2997 | 93 17 17 | 2990 |
| | Jupiter | W. | 59 45 8 | 2943 | 61 16 33 | 2936 | 62 48 6 | 2929 | 64 19 48 | 2923 |
| | Spica ♍ | W. | 48 27 1 | 2969 | 49 57 53 | 2962 | 51 28 54 | 2957 | 53 0 1 | 2951 |
| | Fomalhaut | E. | 80 19 5 | 3223 | 78 53 23 | 3220 | 77 27 38 | 3217 | 76 1 49 | 3214 |
| 2 | Mars | W. | 100 50 42 | 2958 | 102 21 48 | 2949 | 103 53 5 | 2941 | 105 24 32 | 2933 |
| | Jupiter | W. | 72 0 22 | 2887 | 73 32 57 | 2880 | 75 5 41 | 2872 | 76 38 36 | 2864 |
| | Spica ♍ | W. | 60 37 43 | 2915 | 62 9 43 | 2906 | 63 41 54 | 2899 | 65 14 14 | 2891 |
| | Fomalhaut | E. | 68 51 56 | 3203 | 67 25 50 | 3202 | 65 59 43 | 3201 | 64 33 35 | 3200 |
| | Sun | E. | 138 48 36 | 3291 | 137 24 14 | 3282 | 135 59 42 | 3272 | 134 34 58 | 3261 |
| 3 | Jupiter | W. | 84 25 53 | 2819 | 85 59 56 | 2810 | 87 34 11 | 2801 | 89 8 38 | 2790 |
| | Spica ♍ | W. | 72 58 41 | 2846 | 74 32 9 | 2836 | 76 5 50 | 2826 | 77 39 44 | 2815 |
| | Antares | W. | 27 4 30 | 2847 | 28 37 57 | 2836 | 30 11 38 | 2826 | 31 45 32 | 2816 |
| | Saturn | W. | 26 45 23 | 2979 | 28 16 2 | 2954 | 29 47 13 | 2930 | 31 18 54 | 2909 |
| | Fomalhaut | E. | 57 23 1 | 3208 | 55 57 1 | 3212 | 54 31 6 | 3217 | 53 5 17 | 3223 |
| | Sun | E. | 127 28 25 | 3211 | 126 2 29 | 3200 | 124 36 20 | 3189 | 123 9 58 | 3178 |
| 4 | Jupiter | W. | 97 4 22 | 2736 | 98 40 14 | 2725 | 100 16 21 | 2713 | 101 52 44 | 2701 |
| | Antares | W. | 39 38 28 | 2761 | 41 13 47 | 2750 | 42 49 21 | 2737 | 44 25 12 | 2723 |
| | Saturn | W. | 39 3 36 | 2818 | 40 37 41 | 2801 | 42 12 7 | 2784 | 43 46 56 | 2769 |
| | Fomalhaut | E. | 45 58 37 | 3280 | 44 34 2 | 3299 | 43 9 49 | 3320 | 41 46 0 | 3346 |
| | α Pegasi | E. | 67 18 49 | 3070 | 65 50 3 | 3066 | 64 21 12 | 3064 | 62 52 18 | 3060 |
| | Sun | E. | 115 54 35 | 3116 | 114 26 45 | 3104 | 112 58 40 | 3091 | 111 30 19 | 3078 |
| 5 | Jupiter | W. | 109 58 47 | 2638 | 111 36 51 | 2624 | 113 15 14 | 2610 | 114 53 55 | 2596 |
| | Antares | W. | 52 28 36 | 2660 | 54 6 10 | 2646 | 55 44 2 | 2632 | 57 22 13 | 2618 |
| | Saturn | W. | 51 46 13 | 2689 | 53 23 8 | 2673 | 55 0 24 | 2657 | 56 38 1 | 2642 |
| | α Pegasi | E. | 55 27 9 | 3059 | 53 58 9 | 3061 | 52 29 12 | 3066 | 51 0 21 | 3073 |
| | Sun | E. | 104 4 20 | 3006 | 102 34 15 | 2992 | 101 3 52 | 2977 | 99 33 10 | 2961 |
| 6 | Antares | W. | 65 38 5 | 2545 | 67 18 16 | 2529 | 68 58 49 | 2514 | 70 39 42 | 2498 |
| | Saturn | W. | 64 51 30 | 2561 | 66 31 18 | 2545 | 68 11 28 | 2530 | 69 52 0 | 2513 |
| | α Pegasi | E. | 43 39 4 | 3143 | 42 11 47 | 3167 | 40 44 59 | 3198 | 39 18 47 | 3234 |
| | Sun | E. | 91 54 43 | 2882 | 90 22 1 | 2866 | 88 48 58 | 2849 | 87 15 34 | 2832 |
| 7 | Antares | W. | 79 9 41 | 2419 | 80 52 48 | 2403 | 82 36 18 | 2388 | 84 20 10 | 2372 |
| | Saturn | W. | 78 20 24 | 2431 | 80 3 14 | 2415 | 81 46 27 | 2399 | 83 30 3 | 2384 |
| | Sun | E. | 79 23 5 | 2748 | 77 47 29 | 2731 | 76 11 31 | 2714 | 74 35 10 | 2698 |
| 8 | Antares | W. | 93 5 18 | 2293 | 94 51 28 | 2277 | 96 38 1 | 2262 | 98 24 56 | 2247 |
| | Saturn | W. | 92 13 48 | 2304 | 93 59 42 | 2289 | 95 45 58 | 2274 | 97 32 36 | 2259 |
| | Sun | E. | 66 27 47 | 2614 | 64 49 11 | 2599 | 63 10 14 | 2582 | 61 30 54 | 2566 |
| 9 | Saturn | W. | 106 31 9 | 2189 | 108 19 53 | 2176 | 110 8 56 | 2164 | 111 58 18 | 2153 |
| | α Aquilæ | W. | 60 18 38 | 3270 | 61 43 25 | 3219 | 63 9 12 | 3172 | 64 35 55 | 3128 |
| | Sun | E. | 53 8 59 | 2492 | 51 27 35 | 2479 | 49 45 53 | 2466 | 48 3 52 | 2454 |
| 10 | α Aquilæ | W. | 72 1 35 | 2954 | 73 32 45 | 2927 | 75 4 29 | 2902 | 76 36 45 | 2880 |
| | Fomalhaut | W. | 43 28 50 | 2618 | 45 7 21 | 2574 | 46 46 52 | 2535 | 48 27 17 | 2499 |
| | α Pegasi | W. | 25 26 44 | 3963 | 26 39 0 | 3717 | 27 55 29 | 3514 | 29 15 38 | 3343 |
| | Sun | E. | 39 29 42 | 2401 | 37 46 9 | 2393 | 36 2 25 | 2386 | 34 18 30 | 2380 |
| 15 | Sun | W. | 31 0 41 | 2555 | 32 40 38 | 2568 | 34 20 17 | 2583 | 35 59 35 | 2598 |
| | Regulus | E. | 63 6 15 | 2211 | 61 18 4 | 2227 | 59 30 17 | 2244 | 57 42 55 | 2261 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Midnight. | P. L. of diff. | XV h. | P. L. of diff. | XVIII h. | P. L. of diff. | XXI h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 1 | Mars | W. | 94 47 42 | 2984 | 96 18 15 | 2977 | 97 48 56 | 2971 | 99 19 45 | 2965 |
| | Jupiter | W. | 65 51 37 | 2916 | 67 23 35 | 2909 | 68 55 42 | 2903 | 70 27 57 | 2895 |
| | Spica ♍ | W. | 54 31 15 | 2943 | 56 2 39 | 2937 | 57 34 11 | 2929 | 59 5 53 | 2923 |
| | Fomalhaut | E. | 74 35 56 | 3211 | 73 10 0 | 3209 | 71 44 1 | 3207 | 70 18 0 | 3204 |
| 2 | Mars | W. | 106 56 7 | 2927 | 108 27 52 | 2918 | 109 59 48 | 2909 | 111 31 55 | 2900 |
| | Jupiter | W. | 78 11 41 | 2856 | 79 44 57 | 2847 | 81 18 24 | 2838 | 82 52 3 | 2829 |
| | Spica ♍ | W. | 66 46 45 | 2882 | 68 19 27 | 2873 | 69 52 20 | 2864 | 71 25 25 | 2856 |
| | Fomalhaut | E. | 63 7 26 | 3200 | 61 41 17 | 3202 | 60 15 10 | 3203 | 58 49 5 | 3204 |
| | Sun | E. | 133 10 3 | 3253 | 131 44 57 | 3242 | 130 19 38 | 3233 | 128 54 8 | 3222 |
| 3 | Jupiter | W. | 90 43 19 | 2779 | 92 18 14 | 2769 | 93 53 22 | 2758 | 95 28 45 | 2747 |
| | Spica ♍ | W. | 79 13 52 | 2805 | 80 48 13 | 2795 | 82 22 48 | 2783 | 83 57 38 | 2772 |
| | Antares | W. | 33 19 39 | 2806 | 34 53 59 | 2795 | 36 28 34 | 2783 | 38 3 24 | 2772 |
| | Saturn | W. | 32 51 2 | 2889 | 34 23 35 | 2870 | 35 56 32 | 2852 | 37 29 53 | 2835 |
| | Fomalhaut | E. | 51 39 35 | 3231 | 50 14 2 | 3240 | 48 48 40 | 3251 | 47 23 31 | 3264 |
| | Sun | E. | 121 43 22 | 3166 | 120 16 32 | 3154 | 118 49 28 | 3142 | 117 22 9 | 3129 |
| 4 | Jupiter | W. | 103 29 23 | 2689 | 105 6 18 | 2675 | 106 43 31 | 2663 | 108 21 0 | 2650 |
| | Antares | W. | 46 1 19 | 2713 | 47 37 42 | 2699 | 49 14 23 | 2687 | 50 51 20 | 2673 |
| | Saturn | W. | 45 22 5 | 2752 | 46 57 36 | 2737 | 48 33 27 | 2720 | 50 9 40 | 2705 |
| | Fomalhaut | E. | 40 22 42 | 3375 | 38 59 57 | 3410 | 37 37 52 | 3452 | 36 16 34 | 3500 |
| | α Pegasi | E. | 61 23 19 | 3057 | 59 54 17 | 3056 | 58 25 14 | 3056 | 56 56 11 | 3057 |
| | Sun | E. | 110 1 42 | 3064 | 108 32 48 | 3049 | 107 3 36 | 3035 | 105 34 7 | 3021 |
| 5 | Jupiter | W. | 116 32 55 | 2583 | 118 12 14 | 2569 | 119 51 52 | 2554 | 121 31 51 | 2540 |
| | Antares | W. | 59 0 43 | 2604 | 60 39 33 | 2589 | 62 18 43 | 2574 | 63 58 14 | 2559 |
| | Saturn | W. | 58 15 59 | 2626 | 59 54 19 | 2610 | 61 33 1 | 2594 | 63 12 4 | 2577 |
| | α Pegasi | E. | 49 31 39 | 3082 | 48 3 7 | 3092 | 46 34 48 | 3106 | 45 6 46 | 3123 |
| | Sun | E. | 98 2 8 | 2946 | 96 30 47 | 2930 | 94 59 6 | 2914 | 93 27 5 | 2898 |
| 6 | Antares | W. | 72 20 58 | 2482 | 74 2 36 | 2467 | 75 44 35 | 2451 | 77 26 57 | 2436 |
| | Saturn | W. | 71 32 55 | 2497 | 73 14 13 | 2480 | 74 55 54 | 2464 | 76 37 58 | 2448 |
| | α Pegasi | E. | 37 53 18 | 3277 | 36 28 39 | 3327 | 35 4 59 | 3387 | 33 42 28 | 3461 |
| | Sun | E. | 85 41 48 | 2815 | 84 7 40 | 2798 | 82 33 10 | 2782 | 80 58 19 | 2765 |
| 7 | Antares | W. | 86 4 25 | 2355 | 87 49 4 | 2339 | 89 34 6 | 2324 | 91 19 30 | 2308 |
| | Saturn | W. | 85 14 1 | 2367 | 86 58 24 | 2351 | 88 43 9 | 2335 | 90 28 17 | 2319 |
| | Sun | E. | 72 58 27 | 2680 | 71 21 20 | 2664 | 69 43 52 | 2647 | 68 6 1 | 2630 |
| 8 | Antares | W. | 100 12 14 | 2232 | 101 59 54 | 2217 | 103 47 56 | 2202 | 105 36 20 | 2188 |
| | Saturn | W. | 99 19 36 | 2244 | 101 6 58 | 2230 | 102 54 41 | 2216 | 104 42 45 | 2202 |
| | Sun | E. | 59 51 13 | 2551 | 58 11 10 | 2536 | 56 30 47 | 2521 | 54 50 3 | 2507 |
| 9 | Saturn | W. | 113 47 57 | 2141 | 115 37 54 | 2130 | 117 28 7 | 2120 | 119 18 35 | 2111 |
| | α Aquilæ | W. | 66 3 31 | 3087 | 67 31 56 | 3050 | 69 1 7 | 3015 | 70 31 1 | 2983 |
| | Sun | E. | 46 21 34 | 2442 | 44 38 59 | 2431 | 42 56 8 | 2420 | 41 13 2 | 2410 |
| 10 | α Aquilæ | W. | 78 9 29 | 2861 | 79 42 38 | 2843 | 81 16 10 | 2828 | 82 50 1 | 2815 |
| | Fomalhaut | W. | 50 8 32 | 2467 | 51 50 32 | 2438 | 53 33 13 | 2412 | 55 16 31 | 2389 |
| | α Pegasi | W. | 30 39 0 | 3197 | 32 5 13 | 3073 | 33 33 56 | 2967 | 35 4 50 | 2877 |
| | Sun | E. | 32 34 27 | 2375 | 30 50 17 | 2373 | 29 6 3 | 2371 | 27 21 46 | 2371 |
| 15 | [illegible] | W. | 37 38 33 | 2613 | 39 17 10 | 2630 | 40 55 24 | 2647 | 42 33 15 | 2664 |
| | | | 55 55 58 | 2278 | 54 9 26 | 2296 | 52 23 20 | 2313 | 50 37 39 | 2331 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P. L. of diff. | III h. | P. L. of diff. | VI h. | P. L. of diff. | IX h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 15 | Mars | E. | 79 15 50 | 2283 | 77 29 26 | 2300 | 75 43 26 | 2316 | 73 57 50 | 2334 |
| | Jupiter | E. | 104 42 33 | 2196 | 102 53 59 | 2213 | 101 5 50 | 2229 | 99 18 5 | 2246 |
| 16 | Sun | W. | 44 10 43 | 2682 | 45 47 47 | 2701 | 47 24 26 | 2719 | 49 0 41 | 2738 |
| | Regulus | E. | 48 52 25 | 2349 | 47 7 37 | 2368 | 45 23 16 | 2386 | 43 39 21 | 2405 |
| | Mars | E. | 65 16 19 | 2425 | 63 33 20 | 2444 | 61 50 48 | 2463 | 60 8 42 | 2482 |
| | Jupiter | E. | 90 25 39 | 2333 | 88 40 28 | 2351 | 86 55 43 | 2370 | 85 11 25 | 2388 |
| 17 | Sun | W. | 56 55 37 | 2834 | 58 29 21 | 2854 | 60 2 39 | 2873 | 61 35 32 | 2893 |
| | Venus | W. | 21 30 10 | 2940 | 23 1 38 | 2954 | 24 32 48 | 2969 | 26 3 39 | 2985 |
| | Regulus | E. | 35 6 32 | 2500 | 33 25 19 | 2520 | 31 44 33 | 2538 | 30 4 13 | 2557 |
| | Mars | E. | 51 45 0 | 2579 | 50 5 36 | 2598 | 48 26 38 | 2618 | 46 48 7 | 2637 |
| | Jupiter | E. | 76 36 33 | 2482 | 74 54 55 | 2501 | 73 13 43 | 2519 | 71 32 56 | 2538 |
| | Spica ♍ | E. | 89 5 39 | 2495 | 87 24 18 | 2512 | 85 43 22 | 2531 | 84 2 52 | 2550 |
| 18 | Sun | W. | 69 13 49 | 2989 | 70 44 16 | 3008 | 72 14 19 | 3026 | 73 44 0 | 3044 |
| | Venus | W. | 33 32 39 | 3072 | 35 1 23 | 3090 | 36 29 45 | 3108 | 37 57 45 | 3125 |
| | Mars | E. | 38 41 57 | 2731 | 37 5 58 | 2749 | 35 30 23 | 2767 | 33 55 12 | 2785 |
| | Jupiter | E. | 63 15 28 | 2629 | 61 37 13 | 2647 | 59 59 22 | 2665 | 58 21 55 | 2683 |
| | Spica ♍ | E. | 75 46 43 | 2641 | 74 8 43 | 2658 | 72 31 6 | 2675 | 70 53 53 | 2692 |
| 19 | Sun | W. | 81 6 53 | 3131 | 82 34 25 | 3148 | 84 1 37 | 3164 | 85 28 29 | 3180 |
| | Venus | W. | 45 12 34 | 3209 | 46 38 32 | 3226 | 48 4 10 | 3242 | 49 29 30 | 3258 |
| | Pollux | W. | 28 2 57 | 2787 | 29 37 42 | 2801 | 31 12 8 | 2815 | 32 46 17 | 2829 |
| | Jupiter | E. | 50 20 23 | 2766 | 48 45 10 | 2782 | 47 10 18 | 2797 | 45 35 46 | 2812 |
| | Spica ♍ | E. | 62 53 21 | 2774 | 61 18 19 | 2789 | 59 43 36 | 2804 | 58 9 13 | 2818 |
| | Saturn | E. | 108 44 1 | 2783 | 107 9 11 | 2798 | 105 34 40 | 2812 | 104 0 28 | 2827 |
| 20 | Sun | W. | 92 38 16 | 3253 | 94 3 22 | 3266 | 95 28 13 | 3280 | 96 52 48 | 3292 |
| | Venus | W. | 56 31 44 | 3330 | 57 55 21 | 3343 | 59 18 43 | 3355 | 60 41 51 | 3369 |
| | Pollux | W. | 40 32 40 | 2893 | 42 5 8 | 2905 | 43 37 20 | 2916 | 45 9 18 | 2927 |
| | Jupiter | E. | 37 47 57 | 2884 | 36 15 18 | 2898 | 34 42 56 | 2912 | 33 10 52 | 2924 |
| | Spica ♍ | E. | 50 21 53 | 2886 | 48 49 16 | 2898 | 47 16 55 | 2910 | 45 44 49 | 2922 |
| | Saturn | E. | 96 13 53 | 2892 | 94 41 24 | 2904 | 93 9 10 | 2916 | 91 37 11 | 2928 |
| 21 | Sun | W. | 103 52 15 | 3349 | 105 15 30 | 3359 | 106 38 33 | 3368 | 108 1 26 | 3378 |
| | Venus | W. | 67 34 6 | 3423 | 68 55 57 | 3432 | 70 17 37 | 3442 | 71 39 6 | 3451 |
| | Pollux | W. | 52 45 46 | 2977 | 54 16 27 | 2986 | 55 46 57 | 2995 | 57 17 16 | 3003 |
| | Spica ♍ | E. | 38 7 48 | 2973 | 36 37 1 | 2982 | 35 6 26 | 2990 | 33 36 1 | 2999 |
| | Saturn | E. | 84 0 42 | 2978 | 82 30 2 | 2988 | 80 59 34 | 2996 | 79 29 16 | 3005 |
| | Antares | E. | 84 2 5 | 2973 | 82 31 18 | 2982 | 81 0 43 | 2990 | 79 30 18 | 2998 |
| 22 | Sun | W. | 114 53 23 | 3417 | 116 15 20 | 3423 | 117 37 10 | 3430 | 118 58 53 | 3435 |
| | Venus | W. | 78 24 13 | 3488 | 79 44 51 | 3494 | 81 5 22 | 3499 | 82 25 47 | 3505 |
| | Pollux | W. | 64 46 33 | 3037 | 66 16 0 | 3042 | 67 45 21 | 3048 | 69 14 35 | 3052 |
| | Regulus | W. | 27 57 55 | 3041 | 29 27 17 | 3046 | 30 56 33 | 3051 | 32 25 43 | 3054 |
| | Saturn | E. | 72 0 15 | 3041 | 70 30 53 | 3048 | 69 1 39 | 3053 | 67 32 32 | 3059 |
| | Antares | E. | 72 0 35 | 3033 | 70 31 3 | 3039 | 69 1 38 | 3044 | 67 32 20 | 3048 |
| 23 | Sun | W. | 125 46 1 | 3458 | 127 7 12 | 3462 | 128 28 18 | 3464 | 129 49 22 | 346[illegible] |
| | Venus | W. | 89 6 35 | 3524 | 90 26 33 | 3526 | 91 46 28 | 3528 | 93 6 21 | 353[illegible] |
| | Pollux | W. | 76 39 29 | 3070 | 78 8 15 | 3072 | 79 36 59 | 3074 | 81 5 40 | 3076 |
| | Regulus | W. | 39 50 25 | 3071 | 41 19 10 | 3073 | 42 47 53 | 3075 | 44 16 33 | 3076 |
| | Antares | E. | 60 7 5 | 3066 | 58 38 14 | 3069 | 57 9 27 | 3071 | 55 40 42 | 3073 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Midnight. | P.L. of diff. | XV h. | P.L. of diff. | XVIII h. | P.L. of diff. | XXI h. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 15 | Mars | E. | 72 12 40 | 2352 | 70 27 56 | 2369 | 68 43 37 | 2388 | 66 59 45 | 2406 |
| | Jupiter | E. | 97 30 45 | 2262 | 95 43 50 | 2279 | 93 57 20 | 2298 | 92 11 17 | 2315 |
| 16 | Sun | W. | 50 36 31 | 2757 | 52 11 55 | 2776 | 53 46 55 | 2795 | 55 21 29 | 2815 |
| | Regulus | E. | 41 55 54 | 2424 | 40 12 53 | 2443 | 38 30 19 | 2462 | 36 48 12 | 2481 |
| | Mars | E. | 58 27 4 | 2502 | 56 45 53 | 2520 | 55 5 8 | 2540 | 53 24 51 | 2559 |
| | Jupiter | E. | 83 27 33 | 2407 | 81 44 8 | 2426 | 80 1 10 | 2445 | 78 18 39 | 2463 |
| 17 | Sun | W. | 63 8 0 | 2912 | 64 40 4 | 2931 | 66 11 43 | 2950 | 67 42 58 | 2969 |
| | Venus | W. | 27 34 10 | 3002 | 29 4 20 | 3020 | 30 34 8 | 3038 | 32 3 34 | 3055 |
| | Regulus | E. | 28 24 19 | 2577 | 26 44 53 | 2596 | 25 5 53 | 2615 | 23 27 19 | 2635 |
| | Mars | E. | 45 10 2 | 2656 | 43 32 23 | 2675 | 41 55 9 | 2693 | 40 18 20 | 2713 |
| | Jupiter | E. | 69 52 36 | 2556 | 68 12 41 | 2575 | 66 33 12 | 2593 | 64 54 7 | 2612 |
| | Spica ♍ | E. | 82 22 48 | 2569 | 80 43 10 | 2586 | 79 3 56 | 2605 | 77 25 8 | 2622 |
| 18 | Sun | W. | 75 13 18 | 3062 | 76 42 14 | 3080 | 78 10 48 | 3097 | 79 39 1 | 3115 |
| | Venus | W. | 39 25 24 | 3143 | 40 52 42 | 3160 | 42 19 39 | 3177 | 43 46 16 | 3193 |
| | Mars | E. | 32 20 25 | 2803 | 30 46 1 | 2820 | 29 11 59 | 2837 | 27 38 19 | 2854 |
| | Jupiter | E. | 56 44 52 | 2699 | 55 8 11 | 2716 | 53 31 53 | 2733 | 51 55 57 | 2750 |
| | Spica ♍ | E. | 69 17 3 | 2709 | 67 40 35 | 2726 | 66 4 29 | 2742 | 64 28 45 | 2757 |
| 19 | Sun | W. | 86 55 2 | 3195 | 88 21 17 | 3210 | 89 47 14 | 3225 | 91 12 53 | 3239 |
| | Venus | W. | 50 54 31 | 3272 | 52 19 15 | 3288 | 53 43 41 | 3302 | 55 7 50 | 3315 |
| | Pollux | W. | 34 20 7 | 2842 | 35 53 41 | 2856 | 37 26 57 | 2869 | 38 59 56 | 2880 |
| | Jupiter | E. | 44 1 34 | 2828 | 42 27 42 | 2842 | 40 54 8 | 2857 | 39 20 54 | 2870 |
| | Spica ♍ | E. | 56 35 9 | 2833 | 55 1 24 | 2846 | 53 27 56 | 2860 | 51 54 46 | 2873 |
| | Saturn | E. | 102 26 35 | 2840 | 100 52 59 | 2853 | 99 19 40 | 2866 | 97 46 38 | 2880 |
| 20 | Sun | W. | 98 17 9 | 3305 | 99 41 15 | 3316 | 101 5 8 | 3327 | 102 28 48 | 3339 |
| | Venus | W. | 62 4 44 | 3380 | 63 27 23 | 3391 | 64 49 50 | 3402 | 66 12 4 | 3413 |
| | Pollux | W. | 46 41 2 | 2939 | 48 12 32 | 2949 | 49 43 49 | 2958 | 51 14 54 | 2969 |
| | Jupiter | E. | 31 39 4 | 2938 | 30 7 33 | 2950 | 28 36 17 | 2963 | 27 5 18 | 2976 |
| | Spica ♍ | E. | 44 12 58 | 2933 | 42 41 21 | 2943 | 41 9 57 | 2954 | 39 38 46 | 2964 |
| | Saturn | E. | 90 5 27 | 2938 | 88 33 56 | 2949 | 87 2 39 | 2958 | 85 31 34 | 2969 |
| 21 | Sun | W. | 109 24 8 | 3386 | 110 46 40 | 3394 | 112 9 3 | 3402 | 113 31 17 | 3409 |
| | Venus | W. | 73 0 25 | 3459 | 74 21 35 | 3467 | 75 42 36 | 3475 | 77 3 28 | 3481 |
| | Pollux | W. | 58 47 25 | 3010 | 60 17 25 | 3018 | 61 47 16 | 3025 | 63 16 58 | 3031 |
| | Spica ♍ | E. | 32 5 47 | 3007 | 30 35 43 | 3014 | 29 5 47 | 3021 | 27 36 0 | 3027 |
| | Saturn | E. | 77 59 9 | 3013 | 76 29 12 | 3020 | 74 59 24 | 3027 | 73 29 45 | 3035 |
| | Antares | E. | 78 0 3 | 3006 | 76 29 58 | 3014 | 75 0 2 | 3021 | 73 30 15 | 3026 |
| 22 | Sun | W. | 120 20 30 | 3440 | 121 42 1 | 3446 | 123 3 26 | 3450 | 124 24 46 | 3455 |
| | Venus | W. | 83 46 6 | 3509 | 85 6 20 | 3514 | 86 26 29 | 3517 | 87 46 34 | 3521 |
| | Pollux | W. | 70 43 43 | 3056 | 72 12 47 | 3061 | 73 41 45 | 3064 | 75 10 39 | 3067 |
| | Regulus | W. | 33 54 49 | 3059 | 35 23 49 | 3063 | 36 52 44 | 3065 | 38 21 36 | 3068 |
| | Saturn | E. | 66 3 32 | 3064 | 64 34 38 | 3069 | 63 5 50 | 3073 | 61 37 7 | 3078 |
| | Antares | E. | 66 3 7 | 3053 | 64 34 0 | 3057 | 63 4 58 | 3060 | 61 36 0 | 3063 |
| 23 | Sun | W. | 131 10 22 | 3471 | 132 31 19 | 3473 | 133 52 13 | 3475 | 135 13 5 | 3477 |
| | Venus | W. | 94 26 11 | 3532 | 95 46 0 | 3533 | 97 5 48 | 3533 | 98 25 36 | 3534 |
| | Pollux | W. | 82 34 19 | 3077 | 84 2 57 | 3078 | 85 31 33 | 3078 | 87 0 9 | 3079 |
| | Regulus | W. | 45 45 12 | 3078 | 47 13 49 | 3078 | 48 42 26 | 3079 | 50 11 1 | 3078 |
| | Antares | E. | 54 11 59 | 3074 | 52 43 17 | 3075 | 51 14 37 | 3076 | 49 45 58 | 3076 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III h. | P.L. of diff. | VI h. | P.L. of diff. | IX h. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ |
| 23 | Saturn | E. | 60 8 30 | 3082 | 58 39 58 | 3085 | 57 11 30 | 3089 | 55 43 7 |
| 24 | Venus | W. | 99 45 23 | 3534 | 101 5 10 | 3533 | 102 24 58 | 3533 | 103 44 46 |
| | Regulus | W. | 51 39 37 | 3079 | 53 8 12 | 3078 | 54 36 48 | 3078 | 56 5 25 |
| | Mars | W. | 32 57 56 | 3194 | 34 24 13 | 3194 | 35 50 30 | 3193 | 37 16 48 |
| | Antares | E. | 48 17 19 | 3076 | 46 48 40 | 3076 | 45 20 1 | 3075 | 43 51 21 |
| | Saturn | E. | 48 22 6 | 3105 | 46 54 3 | 3109 | 45 26 4 | 3111 | 43 58 8 |
| 25 | Venus | W. | 110 24 15 | 3520 | 111 44 17 | 3518 | 113 4 21 | 3515 | 114 24 29 |
| | Regulus | W. | 63 28 56 | 3067 | 64 57 46 | 3065 | 66 26 39 | 3061 | 67 55 36 |
| | Mars | W. | 44 28 37 | 3184 | 45 55 5 | 3182 | 47 21 36 | 3179 | 48 48 10 |
| | Jupiter | W. | 22 29 32 | 3089 | 23 57 55 | 3083 | 25 26 26 | 3077 | 26 55 4 |
| | Antares | E. | 36 27 36 | 3065 | 34 58 44 | 3062 | 33 29 48 | 3060 | 32 0 49 |
| | Saturn | E. | 36 39 16 | 3128 | 35 11 41 | 3133 | 33 44 11 | 3138 | 32 16 48 |
| | α Aquilæ | E. | 90 14 26 | 3843 | 89 0 8 | 3841 | 87 45 48 | 3840 | 86 31 27 |
| 26 | Regulus | W. | 75 21 23 | 3039 | 76 50 47 | 3035 | 78 20 17 | 3031 | 79 49 52 |
| | Mars | W. | 56 1 57 | 3158 | 57 28 56 | 3154 | 58 56 0 | 3150 | 60 23 9 |
| | Jupiter | W. | 34 20 0 | 3043 | 35 49 19 | 3038 | 37 18 44 | 3033 | 38 48 16 |
| | Spica ♍ | W. | 21 19 55 | 3039 | 22 49 20 | 3034 | 24 18 51 | 3030 | 25 48 27 |
| | α Aquilæ | E. | 80 19 43 | 3845 | 79 5 27 | 3850 | 77 51 16 | 3855 | 76 37 10 |
| 27 | Mars | W. | 67 40 23 | 3119 | 69 8 9 | 3115 | 70 36 1 | 3109 | 72 4 0 |
| | Jupiter | W. | 46 17 44 | 2998 | 47 48 0 | 2992 | 49 18 22 | 2985 | 50 48 53 |
| | Spica ♍ | W. | 33 18 4 | 2998 | 34 48 20 | 2993 | 36 18 42 | 2986 | 37 49 12 |
| | α Aquilæ | E. | 70 28 22 | 3903 | 69 15 5 | 3916 | 68 2 1 | 3930 | 66 49 11 |
| | Fomalhaut | E. | 94 38 14 | 3249 | 93 13 3 | 3242 | 91 47 44 | 3237 | 90 22 19 |
| 28 | Mars | W. | 79 25 45 | 3072 | 80 54 29 | 3065 | 82 23 21 | 3058 | 83 52 22 |
| | Jupiter | W. | 58 23 23 | 2947 | 59 54 42 | 2940 | 61 26 10 | 2934 | 62 57 45 |
| | Spica ♍ | W. | 45 23 36 | 2948 | 46 54 54 | 2942 | 48 26 19 | 2935 | 49 57 53 |
| | Fomalhaut | E. | 83 13 32 | 3204 | 81 47 27 | 3199 | 80 21 17 | 3196 | 78 55 3 |
| | α Pegasi | E. | 105 1 50 | 3220 | 103 36 4 | 3209 | 102 10 6 | 3199 | 100 43 56 |
| 29 | Mars | W. | 91 19 31 | 3017 | 92 49 23 | 3010 | 94 19 24 | 3002 | 95 49 34 |
| | Jupiter | W. | 70 37 58 | 2891 | 72 10 28 | 2884 | 73 43 7 | 2877 | 75 15 56 |
| | Spica ♍ | W. | 57 37 56 | 2893 | 59 10 24 | 2886 | 60 43 1 | 2878 | 62 15 48 |
| | Fomalhaut | E. | 71 42 46 | 3176 | 70 16 8 | 3175 | 68 49 29 | 3173 | 67 22 48 |
| | α Pegasi | E. | 93 30 24 | 3146 | 92 3 10 | 3138 | 90 35 47 | 3131 | 89 8 15 |
| 30 | Mars | W. | 103 22 47 | 2956 | 104 53 55 | 2948 | 106 25 13 | 2940 | 107 56 41 |
| | Jupiter | W. | 83 2 26 | 2831 | 84 36 13 | 2823 | 86 10 11 | 2815 | 87 44 20 |
| | Spica ♍ | W. | 70 2 10 | 2832 | 71 35 57 | 2824 | 73 9 54 | 2815 | 74 44 2 |
| | Saturn | W. | 25 42 40 | 2966 | 27 13 35 | 2942 | 28 45 1 | 2920 | 30 16 55 |
| | Antares | W. | 24 7 49 | 2832 | 25 41 35 | 2824 | 27 15 32 | 2815 | 28 49 40 |
| | Fomalhaut | E. | 60 9 25 | 3179 | 58 42 51 | 3183 | 57 16 21 | 3188 | 55 49 57 |
| | α Pegasi | E. | 81 48 28 | 3091 | 80 20 7 | 3085 | 78 51 39 | 3080 | 77 23 5 |
| 31 | Jupiter | W. | 95 37 44 | 2765 | 97 12 58 | 2757 | 98 48 22 | 2747 | 100 23 59 |
| | Saturn | W. | 38 2 11 | 2819 | 39 36 14 | 2805 | 41 10 35 | 2791 | 42 45 14 |
| | Antares | W. | 36 43 1 | 2765 | 38 18 15 | 2757 | 39 53 40 | 2747 | 41 29 18 |
| | Fomalhaut | E. | 48 40 18 | 3247 | 47 15 4 | 3263 | 45 50 9 | 3282 | 44 25 37 |
| | α Pegasi | E. | 69 58 50 | 3056 | 68 29 47 | 3053 | 67 0 40 | 3051 | 65 31 31 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Midnight. | P.L. of diff. | XV h. | P.L. of diff. | XVIII h. | P.L. of diff. | XXI h. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 23 | Saturn | E. | 54 14 48 | 3095 | 52 46 32 | 3098 | 51 18 20 | 3101 | 49 50 11 | 3104 |
| 24 | Venus | W. | 105 4 36 | 3529 | 106 24 28 | 3528 | 107 44 21 | 3526 | 109 4 17 | 3524 |
| | Regulus | W. | 57 34 3 | 3075 | 59 2 43 | 3073 | 60 31 25 | 3072 | 62 0 9 | 3069 |
| | Mars | W. | 38 43 7 | 3191 | 40 9 27 | 3190 | 41 35 48 | 3188 | 43 2 11 | 3186 |
| | Antares | E. | 42 22 40 | 3073 | 40 53 57 | 3071 | 39 25 12 | 3069 | 37 56 25 | 3068 |
| | Saturn | E. | 42 30 15 | 3116 | 41 2 25 | 3119 | 39 34 38 | 3122 | 38 6 55 | 3125 |
| 25 | Venus | W. | 115 44 41 | 3507 | 117 4 57 | 3504 | 118 25 17 | 3499 | 119 45 42 | 3494 |
| | Regulus | W. | 69 24 37 | 3056 | 70 53 41 | 3052 | 72 22 50 | 3048 | 73 52 4 | 3043 |
| | Mars | W. | 50 14 48 | 3173 | 51 41 29 | 3170 | 53 8 14 | 3167 | 54 35 3 | 3163 |
| | Jupiter | W. | 28 23 50 | 3065 | 29 52 42 | 3060 | 31 21 41 | 3054 | 32 50 47 | 3048 |
| | Antares | E. | 30 31 46 | 3053 | 29 2 39 | 3050 | 27 33 28 | 3046 | 26 4 12 | 3042 |
| | Saturn | E. | 30 49 32 | 3152 | 29 22 25 | 3160 | 27 55 28 | 3170 | 26 28 43 | 3183 |
| | α Aquilæ | E. | 85 17 5 | 3838 | 84 2 42 | 3840 | 82 48 21 | 3841 | 81 34 1 | 3843 |
| 26 | Regulus | W. | 81 19 33 | 3021 | 82 49 20 | 3015 | 84 19 14 | 3010 | 85 49 14 | 3005 |
| | Mars | W. | 61 50 24 | 3140 | 63 17 45 | 3135 | 64 45 12 | 3131 | 66 12 44 | 3125 |
| | Jupiter | W. | 40 17 56 | 3021 | 41 47 42 | 3015 | 43 17 36 | 3010 | 44 47 36 | 3004 |
| | Spica ♍ | W. | 27 18 10 | 3020 | 28 47 58 | 3014 | 30 17 54 | 3009 | 31 47 56 | 3004 |
| | α Aquilæ | E. | 75 23 9 | 3865 | 74 9 14 | 3873 | 72 55 27 | 3882 | 71 41 49 | 3893 |
| 27 | Mars | W. | 73 32 6 | 3096 | 75 0 20 | 3091 | 76 28 41 | 3085 | 77 57 9 | 3078 |
| | Jupiter | W. | 52 19 31 | 2974 | 53 50 17 | 2967 | 55 21 11 | 2961 | 56 52 13 | 2954 |
| | Spica ♍ | W. | 39 19 49 | 2974 | 40 50 34 | 2968 | 42 21 27 | 2962 | 43 52 28 | 2956 |
| | α Aquilæ | E. | 65 36 37 | 3962 | 64 24 20 | 3982 | 63 12 23 | 4004 | 62 0 47 | 4027 |
| | Fomalhaut | E. | 88 56 47 | 3225 | 87 31 8 | 3219 | 86 5 22 | 3214 | 84 39 30 | 3209 |
| 28 | Mars | W. | 85 21 31 | 3045 | 86 50 48 | 3038 | 88 20 14 | 3031 | 89 49 48 | 3024 |
| | Jupiter | W. | 64 29 30 | 2920 | 66 1 24 | 2913 | 67 33 26 | 2906 | 69 5 37 | 2898 |
| | Spica ♍ | W. | 51 29 36 | 2922 | 53 1 27 | 2914 | 54 33 28 | 2908 | 56 5 37 | 2900 |
| | Fomalhaut | E. | 77 28 44 | 3188 | 76 2 20 | 3184 | 74 35 52 | 3182 | 73 9 21 | 3178 |
| | α Pegasi | E. | 99 17 35 | 3181 | 97 51 3 | 3172 | 96 24 20 | 3163 | 94 57 27 | 3155 |
| 29 | Mars | W. | 97 19 53 | 2987 | 98 50 22 | 2979 | 100 21 1 | 2972 | 101 51 49 | 2964 |
| | Jupiter | W. | 76 48 54 | 2862 | 78 22 2 | 2854 | 79 55 20 | 2846 | 81 28 48 | 2838 |
| | Spica ♍ | W. | 63 48 45 | 2863 | 65 21 51 | 2856 | 66 55 7 | 2847 | 68 28 34 | 2840 |
| | Fomalhaut | E. | 65 56 6 | 3172 | 64 29 24 | 3172 | 63 2 42 | 3174 | 61 36 2 | 3177 |
| | α Pegasi | E. | 87 40 34 | 3117 | 86 12 45 | 3110 | 84 44 48 | 3103 | 83 16 42 | 3096 |
| 30 | Mars | W. | 109 28 20 | 2923 | 111 0 9 | 2915 | 112 32 9 | 2907 | 114 4 19 | 2898 |
| | Jupiter | W. | 89 18 39 | 2798 | 90 53 9 | 2790 | 92 27 50 | 2782 | 94 2 41 | 2773 |
| | Spica ♍ | W. | 76 18 20 | 2799 | 77 52 49 | 2790 | 79 27 30 | 2782 | 81 2 21 | 2773 |
| | Saturn | W. | 31 49 14 | 2882 | 33 21 56 | 2864 | 34 55 1 | 2848 | 36 28 26 | 2833 |
| | Antares | W. | 30 23 58 | 2799 | 31 58 27 | 2791 | 33 33 7 | 2782 | 35 7 59 | 2774 |
| | Fomalhaut | E. | 54 23 40 | 3201 | 52 57 32 | 3209 | 51 31 33 | 3220 | 50 5 48 | 3233 |
| | α Pegasi | E. | 75 54 25 | 3070 | 74 25 39 | 3065 | 72 56 47 | 3061 | 71 27 50 | 3059 |
| 31 | Jupiter | W. | 101 59 47 | 2730 | 103 35 47 | 2722 | 105 11 58 | 2712 | 106 48 22 | 2703 |
| | Saturn | W. | 44 20 10 | 2766 | 45 55 23 | 2753 | 47 30 52 | 2741 | 49 6 37 | 2730 |
| | Antares | W. | 43 5 7 | 2729 | 44 41 8 | 2720 | 46 17 21 | 2711 | 47 53 47 | 2702 |
| | Fomalhaut | E. | 43 1 31 | 3331 | 41 37 56 | 3362 | 40 14 56 | 3397 | 38 52 36 | 3437 |
| | α Pegasi | E. | 64 2 20 | 3050 | 62 33 9 | 3050 | 61 3 58 | 3051 | 59 34 49 | 3053 |

## CONFIGURATIONS OF THE SATELLITES OF JUPIT

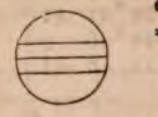
At $10^h$ $30^m$, Mean Time.

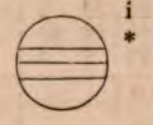
| Day of the Month. | West. | East. |
|---|---|---|
| 1 | ·3 ·1 ·2 | 4· |
| 2 | ·3 | 1· 2· 4· |
| 3 | ·1 2·4 | ·3 |
| 4 | 4· ·2 | ·3 |
| 5 | 4· | ·1 ·2 3· |
| 6 | 4· 1· | 2· |
| 7 | .4 3· 2· | ·1 |
| 8 | ·4 ·3 .1 ·2 | |
| 9 | ·4 ·3 | 1· ·2 |
| 10 | ·4 ·1 | ·3 |
| 11 | ·2 ·4 | 1· ·3 |
| 12 | ● ·1 | ·2 ·4 3· |
| 13 | 1· | 3· 2· ·4 |
| 14 | 3· 2· | ·1 ·4 |
| 15 | .3 1· ·2 | ·4 |
| 16 | ·3 | 1· ·2 4· |
| 17 | ·1 | 2· ·3 4· |
| 18 | .2 | 1· 3· 4· |
| 19 | ·1 | ·2 4· 3· |
| 20 | 4· 1· | 3· 2· |
| 21 | 4· 3· 2· | ·1 |
| 22 | 4· .3 ·2 1· | |
| 23 | 4· ·3 | ·1 ·2 |
| 24 | .4 ·1 | 2· |
| 25 | ·4 2· | 1· ·3 |
| 26 | ·4 ·1 | 3· |
| 27 | 1· ·4 | 3· 2· |
| 28 | 3· 2· | ·4 ·1 |
| 29 | 3· ·2 1· | ·4 |
| 30 | ·3 | ·1 ·2 ·4 |
| 31 | ● ·3 .1 | 2· ·4 |

This Table represents, at $10^h$ $30^m$ after *Mean Noon* of each day of the month, the relative po of the images of Jupiter and his Satellites, as they would appear (disregarding their latitu an inverting telescope. Jupiter is indicated by the white circles (○) in the centre of the the Satellites by points. The numerals 1, 2, 3, and 4, annexed to the points, serve to disti the Satellites from each other; and their positions are such as to indicate the directions of th lites' motions, which are in all cases to be considered as *towards the numerals.* When a Sat at its greatest elongation, the point is placed above or below the centre of the numeral. A circle (○) at the left or right hand of the page, denotes that the Satellite placed by the side *on* the disc of Jupiter, and a black circle (●) that it is either *behind* the disc, or in the shad Jupiter.

## ECLIPSES OF THE SATELLITES OF JUPITER.

| SATELLITE. | Day of the Month. | Mean Time. | Sidereal Time. | PHASE as seen in an inverting Telescope. |
|---|---|---|---|---|
| | | h m s | h m s | |
| I. | 1 | 21 18 29 ·7 | 23 56 55 ·0 | Em. |
| | 3 | 15 47 4 ·6 | 18 32 28 ·6 | Em. |
| | 5* | 10 15 36 ·7 | 13 7 59 ·3 | Em. |
| | 7 | 4 44 11 ·9 | 7 43 33 ·2 | Em. |
| | 8 | 23 12 45 ·1 | 2 19 5 ·0 | Em. |
| | 10 | 17 41 20 ·5 | 20 54 39 ·1 | Em. |
| | 12* | 12 9 53 ·9 | 15 30 11 ·2 | Em. |
| | 14 | 6 38 30 ·2 | 10 5 46 ·1 | Em. |
| | 16 | 1 7 3 ·8 | 4 41 18 ·4 | Em. |
| | 17 | 19 35 40 ·4 | 23 16 53 ·7 | Em. |
| | 19 | 14 4 15 ·6 | 17 52 27 ·5 | Em. |
| | 21 | 8 32 52 ·2 | 12 28 2 ·8 | Em. |
| | 23 | 3 1 27 ·2 | 7 3 36 ·5 | Em. |
| | 24 | 21 30 5 ·1 | 1 39 13 ·0 | Em. |
| | 26 | 15 58 40 ·0 | 20 14 46 ·6 | Em. |
| | 28* | 10 27 18 ·4 | 14 50 23 ·7 | Em. |
| | 30 | 4 55 53 ·9 | 9 25 57 ·9 | Em. |
| | 31 | 23 24 31 ·9 | 4 1 34 ·6 | Em. |
| I. | 1 | 15 46 42 ·3 | 18 24 13 ·1 | Em. |
| | 5 | 5 4 29 ·0 | 7 56 0 ·5 | Em. |
| | 8 | 18 23 11 ·6 | 21 28 44 ·0 | Em. |
| | 12 | 7 41 0 ·8 | 11 0 33 ·9 | Em. |
| | 15 | 20 59 51 ·8 | 0 33 25 ·8 | Em. |
| | 19* | 10 17 45 ·2 | 14 5 20 ·0 | Em. |
| | 22 | 23 36 41 ·6 | 3 38 17 ·3 | Em. |
| | 26* | 12 54 39 ·7 | 17 10 16 ·1 | Em. |
| | 30 | 2 13 39 ·5 | 6 43 16 ·9 | Em. |
| II. | 2 | 21 27 54 ·2 | 0 10 17 ·6 | Im. |
| | 3 | 0 2 3 ·1 | 2 44 51 ·8 | Em. |
| | 10 | 1 26 33 ·2 | 4 37 11 ·6 | Im. |
| | 10 | 3 59 55 ·4 | 7 10 59 ·1 | Em. |
| | 17 | 5 25 19 ·7 | 9 4 13 ·3 | Im. |
| | 17 | 7 57 56 ·4 | 11 37 15 ·0 | Em. |
| | 24* | 9 24 50 ·5 | 13 31 59 ·4 | Im. |
| | 24* | 11 56 41 ·1 | 16 4 14 ·9 | Em. |
| | 31 | 13 23 50 ·0 | 17 59 14 ·0 | Im. |
| | 31 | 15 54 58 ·3 | 20 30 47 ·1 | Em. |

## APPROXIMATE SIDEREAL TIMES
OF THE
## OCCULTATIONS OF JUPITER'S SATELLITES BY JUPITER,
AND OF THE
## TRANSITS OF THE SATELLITES AND THEIR SHADOWS OVER THE DISC OF THE PLANET.

| Satellite. | Occultations. | | Transits of Satellites. | | Transits of Shadows. | |
|---|---|---|---|---|---|---|
| | Immersion. | Emersion. | Ingress. | Egress. | Ingress. | Egress. |
| | d h m | d h m | d h m | d h m | d h m | d h m |
| I. | 1 21 7 | | 0 23 45 | 0 1 59 | 0 0 23 | 1 2 37 |
| | 3* 15 40 | | 2 18 19 | 2 20 33 | 2 18 58 | 2 21 13 |
| | 5 10 14 | | 4* 12 52 | 4* 15 6 | 4* 13 34 | 4* 15 48 |
| | 7 4 47 | | 6 7 26 | 6 9 40 | 6 8 10 | 6 10 24 |
| | 8 23 21 | | 7 2 0 | 8 4 14 | 7 2 45 | 8 5 0 |
| | 10 17 54 | | 9 20 33 | 9 22 48 | 9 21 21 | 9 23 35 |
| | 12* 12 28 | In | 11* 15 7 | 11* 17 21 | 11* 15 57 | 11 18 11 |
| | 14 7 2 | | 13 9 41 | 13 11 55 | 13 10 32 | 13* 12 47 |
| | 15 1 35 | the | 15 4 15 | 15 6 29 | 15 5 8 | 15 7 22 |
| | 17 20 9 | | 16 22 49 | 16 1 3 | 16 23 44 | 16 1 58 |
| | 19* 14 43 | | 18* 17 23 | 18 19 37 | 18 18 19 | 18 20 34 |
| | 21 9 17 | Shadow. | 20 11 57 | 20* 14 11 | 20* 12 55 | 20* 15 9 |
| | 22 3 51 | | 22 6 31 | 22 8 46 | 22 7 31 | 22 9 45 |
| | 24 22 26 | | 23 1 6 | 23 3 20 | 23 2 7 | 24 4 21 |
| | 26* 17 0 | | 25 19 40 | 25 21 55 | 25 20 42 | 25 22 57 |
| | 28 11 34 | | 27* 14 14 | 27* 16 29 | 27* 15 18 | 27* 17 32 |
| | 30 6 9 | | 29 8 49 | 29 11 4 | 29 9 54 | 29 12 8 |
| | 31 0 43 | | 30 3 24 | 31 5 38 | 30 4 30 | 31 6 44 |
| II. | 1* 14 41 | | 3 9 44 | 3* 12 11 | 3* 11 5 | 3* 13 33 |
| | 5 4 4 | | 6 23 7 | 6 1 34 | 6 0 36 | 7 3 5 |
| | 8* 17 29 | In | 10* 12 29 | 10* 14 57 | 10* 14 7 | 10* 16 36 |
| | 12 6 53 | | 13 1 53 | 14 4 21 | 14 3 39 | 14 6 7 |
| | 15 20 18 | the | 17* 15 17 | 17 17 45 | 17* 17 10 | 17 19 38 |
| | 19 9 43 | | 21 4 42 | 21 7 11 | 21 6 42 | 21 9 9 |
| | 22 23 9 | Shadow. | 24 18 6 | 24 20 35 | 24 20 12 | 24 22 40 |
| | 26 12 35 | | 28 7 32 | 28 10 2 | 28 9 44 | 28 12 12 |
| | 29 2 3 | | 31 20 58 | 31 23 28 | 31 23 15 | 31 1 42 |
| III. | 2 21 27 | 2 0 7 | 6 11 20 | 6* 14 1 | 6* 14 15 | 6* 17 0 |
| | 9 1 19 | 10 4 2 | 13* 15 14 | 13 17 58 | 13 18 42 | 13 21 27 |
| | 17 5 15 | 17 8 0 | 20 19 13 | 20 22 0 | 20 23 10 | 20 1 54 |
| | 24 9 17 | 24 12 4 | 27 23 16 | 27 2 4 | 27 3 37 | 28 6 20 |
| | 31 13 22 | 31* 16 11 | | | | |

| For correcting the Places of the Fixed Stars. At Mean Midnight, Logarithm of A | B | C | D | Mean Time of Transit of the First Point of Aries. | Mean Equinoctial Time, adding 0d·293960. Days. | From Mean Noon of January 1. Day of the Year. | Fraction of the Year. |
|---|---|---|---|---|---|---|---|
| | | | | h m s | | | |
| −1·1498 | −1·1248 | +9·5424 | −0·9620 | 21 21 34·22 | 39 | 120 | ·329 |
| 1·1434 | 1·1330 | 9·5461 | 0·9611 | 21 17 38·31 | 40 | 121 | ·331 |
| 1·1367 | 1·1411 | 9·5497 | 0·9602 | 21 13 42·40 | 41 | 122 | ·334 |
| −1·1298 | −1·1489 | +9·5534 | −0·9593 | 21 9 46·48 | 42 | 123 | ·337 |
| 1·1226 | 1·1564 | 9·5570 | 0·9583 | 21 5 50·57 | 43 | 124 | ·339 |
| 1·1152 | 1·1637 | 9·5607 | 0·9574 | 21 1 54·65 | 44 | 125 | ·342 |
| −1·1076 | −1·1707 | +9·5644 | −0·9565 | 20 57 58·74 | 45 | 126 | ·345 |
| 1·0997 | 1·1775 | 9·5680 | 0·9555 | 20 54 2·84 | 46 | 127 | ·348 |
| 1·0915 | 1·1841 | 9·5717 | 0·9546 | 20 50 6·93 | 47 | 128 | ·350 |
| −1·0831 | −1·1904 | +9·5754 | −0·9537 | 20 46 11·03 | 48 | 129 | ·353 |
| 1·0744 | 1·1964 | 9·5790 | 0·9527 | 20 42 15·12 | 49 | 130 | ·356 |
| 1·0653 | 1·2024 | 9·5827 | 0·9518 | 20 38 19·21 | 50 | 131 | ·359 |
| −1·0559 | −1·2081 | +9·5864 | −0·9509 | 20 34 23·30 | 51 | 132 | ·361 |
| 1·0462 | 1·2137 | 9·5901 | 0·9500 | 20 30 27·39 | 52 | 133 | ·364 |
| 1·0362 | 1·2190 | 9·5937 | 0·9491 | 20 26 31·47 | 53 | 134 | ·367 |
| −1·0258 | −1·2241 | +9·5974 | −0·9482 | 20 22 35·55 | 54 | 135 | ·370 |
| 1·0151 | 1·2291 | 9·6011 | 0·9473 | 20 18 39·64 | 55 | 136 | ·372 |
| 1·0039 | 1·2338 | 9·6047 | 0·9464 | 20 14 43·72 | 56 | 137 | ·375 |
| −0·9923 | −1·2384 | +9·6084 | −0·9455 | 20 10 47·81 | 57 | 138 | ·378 |
| 0·9803 | 1·2428 | 9·6120 | 0·9447 | 20 6 51·90 | 58 | 139 | ·381 |
| 0·9679 | 1·2471 | 9·6157 | 0·9438 | 20 2 55·99 | 59 | 140 | ·383 |
| −0·9549 | −1·2512 | +9·6193 | −0·9430 | 19 59 0·09 | 60 | 141 | ·386 |
| 0·9414 | 1·2551 | 9·6230 | 0·9422 | 19 55 4·18 | 61 | 142 | ·389 |
| 0·9274 | 1·2589 | 9·6266 | 0·9414 | 19 51 8·27 | 62 | 143 | ·392 |
| −0·9128 | −1·2625 | +9·6302 | −0·9406 | 19 47 12·36 | 63 | 144 | ·394 |
| 0·8975 | 1·2660 | 9·6339 | 0·9398 | 19 43 16·45 | 64 | 145 | ·397 |
| 0·8816 | 1·2693 | 9·6375 | 0·9391 | 19 39 20·54 | 65 | 146 | ·400 |
| −0·8650 | −1·2725 | +9·6411 | −0·9383 | 19 35 24·63 | 66 | 147 | ·402 |
| 0·8476 | 1·2755 | 9·6446 | 0·9376 | 19 31 28·71 | 67 | 148 | ·405 |
| 0·8293 | 1·2784 | 9·6482 | 0·9369 | 19 27 32·79 | 68 | 149 | ·408 |
| 0·8101 | 1·2811 | 9·6518 | 0·9363 | 19 23 36·87 | 69 | 150 | ·411 |
| −0·7898 | −1·2837 | +9·6554 | −0·9356 | 19 19 40·96 | 70 | 151 | ·413 |

## AT APPARENT NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | Diff. for 1 hour. | Apparent Declination. | Diff. for 1 hour. | Sidereal Time of the Semidiam. passing the Meridian.* | Equation of Time, to be subt. from / added to Apparent Time. |
|---|---|---|---|---|---|---|---|
| | | h m s | s | ° ′ ″ | ″ | m s | m s |
| Sat. | 1 | 4 34 29 ·87 | 10 ·227 | N.22 0 26 ·6 | 20 ·37 | 1 8 ·30 | 2 38 ·23 |
| *Sun.* | 2 | 4 38 35 ·32 | 10 ·244 | 22 8 35 ·5 | 19 ·41 | 1 8 ·35 | 2 29 ·36 |
| Mon. | 3 | 4 42 41 ·18 | 10 ·260 | 22 16 21 ·3 | 18 ·44 | 1 8 ·40 | 2 20 ·09 |
| Tues. | 4 | 4 46 47 ·43 | 10 ·277 | 22 23 43 ·8 | 17 ·47 | 1 8 ·45 | 2 10 ·42 |
| Wed. | 5 | 4 50 54 ·08 | 10 ·292 | 22 30 43 ·0 | 16 ·48 | 1 8 ·50 | 2 0 ·35 |
| Thur. | 6 | 4 55 1 ·08 | 10 ·306 | 22 37 18 ·5 | 15 ·49 | 1 8 ·55 | 1 49 ·93 |
| Frid. | 7 | 4 59 8 ·43 | 10 ·320 | 22 43 30 ·4 | 14 ·50 | 1 8 ·59 | 1 39 ·17 |
| Sat. | 8 | 5 3 16 ·10 | 10 ·332 | 22 49 18 ·3 | 13 ·49 | 1 8 ·63 | 1 28 ·08 |
| *Sun.* | 9 | 5 7 24 ·06 | 10 ·344 | 22 54 42 ·1 | 12 ·49 | 1 8 ·67 | 1 16 ·71 |
| Mon. | 10 | 5 11 32 ·32 | 10 ·355 | 22 59 41 ·8 | 11 ·48 | 1 8 ·71 | 1 5 ·05 |
| Tues. | 11 | 5 15 40 ·83 | 10 ·364 | 23 4 17 ·3 | 10 ·46 | 1 8 ·74 | 0 53 ·14 |
| Wed. | 12 | 5 19 49 ·56 | 10 ·372 | 23 8 28 ·4 | 9 ·44 | 1 8 ·77 | 0 41 ·00 |
| Thur. | 13 | 5 23 58 ·48 | 10 ·379 | 23 12 15 ·0 | 8 ·42 | 1 8 ·80 | 0 28 ·68 |
| Frid. | 14 | 5 28 7 ·57 | 10 ·385 | 23 15 37 ·1 | 7 ·39 | 1 8 ·82 | 0 16 ·18 |
| Sat. | 15 | 5 32 16 ·81 | 10 ·390 | 23 18 34 ·5 | 6 ·37 | 1 8 ·84 | 0 3 ·54 |
| *Sun.* | 16 | 5 36 26 ·16 | 10 ·393 | 23 21 7 ·3 | 5 ·33 | 1 8 ·86 | 0 9 ·21 |
| Mon. | 17 | 5 40 35 ·59 | 10 ·396 | 23 23 15 ·3 | 4 ·30 | 1 8 ·87 | 0 22 ·06 |
| Tues. | 18 | 5 44 45 ·09 | 10 ·398 | 23 24 58 ·5 | 3 ·27 | 1 8 ·88 | 0 34 ·97 |
| Wed. | 19 | 5 48 54 ·64 | 10 ·398 | 23 26 16 ·9 | 2 ·23 | 1 8 ·88 | 0 47 ·93 |
| Thur. | 20 | 5 53 4 ·20 | 10 ·398 | 23 27 10 ·5 | 1 ·20 | 1 8 ·89 | 1 0 ·90 |
| Frid. | 21 | 5 57 13 ·75 | 10 ·397 | 23 27 39 ·3 | 0 ·17 | 1 8 ·89 | 1 13 ·85 |
| Sat. | 22 | 6 1 23 ·28 | 10 ·395 | 23 27 43 ·3 | 0 ·86 | 1 8 ·89 | 1 26 ·79 |
| *Sun.* | 23 | 6 5 32 ·76 | 10 ·392 | 23 27 22 ·6 | 1 ·90 | 1 8 ·89 | 1 39 ·68 |
| Mon. | 24 | 6 9 42 ·17 | 10 ·389 | 23 26 37 ·0 | 2 ·93 | 1 8 ·88 | 1 52 ·50 |
| Tues. | 25 | 6 13 51 ·50 | 10 ·384 | 23 25 26 ·7 | 3 ·95 | 1 8 ·87 | 2 5 ·23 |
| Wed. | 26 | 6 18 0 ·72 | 10 ·379 | 23 23 51 ·8 | 4 ·98 | 1 8 ·85 | 2 17 ·85 |
| Thur. | 27 | 6 22 9 ·81 | 10 ·372 | 23 21 52 ·3 | 6 ·00 | 1 8 ·83 | 2 30 ·34 |
| Frid. | 28 | 6 26 18 ·75 | 10 ·365 | 23 19 28 ·2 | 7 ·03 | 1 8 ·81 | 2 42 ·68 |
| Sat. | 29 | 6 30 27 ·52 | 10 ·358 | 23 16 39 ·5 | 8 ·05 | 1 8 ·78 | 2 54 ·86 |
| *Sun.* | 30 | 6 34 36 ·11 | 10 ·349 | 23 13 26 ·4 | 9 ·06 | 1 8 ·75 | 3 6 ·86 |
| Mon. | 31 | 6 38 44 ·49 | | N.23 9 48 ·9 | | 1 8 ·72 | 3 18 ·65 |

* *Mean* Time of the Semidiameter passing may be found by subtracting 0s·19 from the *Sidere*

## AT MEAN NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | THE SUN'S Apparent Declination. | THE SUN'S Semidiam.* | Equation of Time, to be added to / subt. from Mean Time. | Sidereal Time. |
|---|---|---|---|---|---|---|
| | | h m s | ° ′ ″ | ′ ″ | m s | h m s |
| t. | 1 | 4 34 30 ·32 | N.22 0 27 ·5 | 15 47 ·2 | 2 38 ·22 | 4 37 8 ·54 |
| n. | 2 | 4 38 35 ·75 | 22 8 36 ·3 | 15 47 ·1 | 2 29 ·35 | 4 41 5 ·10 |
| on. | 3 | 4 42 41 ·58 | 22 16 22 ·0 | 15 47 ·0 | 2 20 ·08 | 4 45 1 ·66 |
| es. | 4 | 4 46 47 ·81 | 22 23 44 ·5 | 15 46 ·8 | 2 10 ·40 | 4 48 58 ·21 |
| ed. | 5 | 4 50 54 ·43 | 22 30 43 ·5 | 15 46 ·7 | 2 0 ·33 | 4 52 54 ·76 |
| ur. | 6 | 4 55 1 ·40 | 22 37 19 ·0 | 15 46 ·6 | 1 49 ·92 | 4 56 51 ·32 |
| id. | 7 | 4 59 8 ·71 | 22 43 30 ·8 | 15 46 ·5 | 1 39 ·16 | 5 0 47 ·87 |
| t. | 8 | 5 3 16 ·35 | 22 49 18 ·6 | 15 46 ·4 | 1 28 ·07 | 5 4 44 ·42 |
| n. | 9 | 5 7 24 ·28 | 22 54 42 ·4 | 15 46 ·3 | 1 16 ·70 | 5 8 40 ·98 |
| on. | 10 | 5 11 32 ·50 | 22 59 42 ·0 | 15 46 ·1 | 1 5 ·04 | 5 12 37 ·54 |
| es. | 11 | 5 15 40 ·98 | 23 4 17 ·5 | 15 46 ·0 | 0 53 ·13 | 5 16 34 ·11 |
| ed. | 12 | 5 19 49 ·67 | 23 8 28 ·5 | 15 45 ·9 | 0 41 ·00 | 5 20 30 ·67 |
| ur. | 13 | 5 23 58 ·56 | 23 12 15 ·1 | 15 45 ·9 | 0 28 ·68 | 5 24 27 ·24 |
| id. | 14 | 5 28 7 ·62 | 23 15 37 ·1 | 15 45 ·8 | 0 16 ·18 | 5 28 23 ·80 |
| t. | 15 | 5 32 16 ·82 | 23 18 34 ·5 | 15 45 ·7 | 0 3 ·54 | 5 32 20 ·36 |
| n. | 16 | 5 36 26 ·13 | 23 21 7 ·3 | 15 45 ·6 | 0 9 ·21 | 5 36 16 ·92 |
| on. | 17 | 5 40 35 ·53 | 23 23 15 ·3 | 15 45 ·6 | 0 22 ·06 | 5 40 13 ·47 |
| es. | 18 | 5 44 44 ·99 | 23 24 58 ·5 | 15 45 ·5 | 0 34 ·96 | 5 44 10 ·03 |
| ed. | 19 | 5 48 54 ·50 | 23 26 16 ·9 | 15 45 ·5 | 0 47 ·92 | 5 48 6 ·58 |
| ur. | 20 | 5 53 4 ·02 | 23 27 10 ·5 | 15 45 ·4 | 1 0 ·89 | 5 52 3 ·13 |
| id. | 21 | 5 57 13 ·53 | 23 27 39 ·3 | 15 45 ·4 | 1 13 ·84 | 5 55 59 ·69 |
| t. | 22 | 6 1 23 ·02 | 23 27 43 ·3 | 15 45 ·3 | 1 26 ·77 | 5 59 56 ·25 |
| n. | 23 | 6 5 32 ·47 | 23 27 22 ·6 | 15 45 ·3 | 1 39 ·67 | 6 3 52 ·80 |
| on. | 24 | 6 9 41 ·85 | 23 26 37 ·1 | 15 45 ·3 | 1 52 ·49 | 6 7 49 ·36 |
| es. | 25 | 6 13 51 ·14 | 23 25 26 ·9 | 15 45 ·2 | 2 5 ·21 | 6 11 45 ·93 |
| ed. | 26 | 6 18 0 ·32 | 23 23 52 ·0 | 15 45 ·2 | 2 17 ·83 | 6 15 42 ·49 |
| ur. | 27 | 6 22 9 ·38 | 23 21 52 ·5 | 15 45 ·2 | 2 30 ·32 | 6 19 39 ·06 |
| id. | 28 | 6 26 18 ·28 | 23 19 28 ·5 | 15 45 ·1 | 2 42 ·66 | 6 23 35 ·62 |
| t. | 29 | 6 30 27 ·01 | 23 16 39 ·9 | 15 45 ·1 | 2 54 ·83 | 6 27 32 ·18 |
| n. | 30 | 6 34 35 ·57 | 23 13 26 ·9 | 15 45 ·1 | 3 6 ·83 | 6 31 28 ·74 |
| on. | 31 | 6 38 43 ·92 | N.23 9 49 ·4 | 15 45 ·1 | 3 18 ·62 | 6 35 25 ·30 |

*Semidiameter for *Apparent* Noon may be assumed the same as that for *Mean* Noon.

## MEAN TIME.

| Day of the Month. | THE SUN'S Apparent Longitude. Noon. | THE SUN'S Apparent Latitude. Noon. | Logarithm of the Radius Vector of the Earth. Noon. | THE MOON'S Semidiameter. Noon. | THE MOON'S Semidiameter. Midnight. | THE MOON'S Horizontal Parallax. Noon. | THE MOON'S Horizontal Parallax. Midnight. |
|---|---|---|---|---|---|---|---|
| | ° ′ ″ | ″ | | ′ ″ | ′ ″ | ′ ″ | ′ ″ |
| 1 | 70 15 5·2 | S. 0·63 | 0·0062245 | 15 23·0 | 15 27·7 | 56 27·3 | 56 44 |
| 2 | 71 12 31·5 | 0·53 | 0·0062877 | 15 32·5 | 15 37·4 | 57 1·9 | 57 20 |
| 3 | 72 9 57·1 | 0·41 | 0·0063494 | 15 42·5 | 15 47·6 | 57 38·6 | 57 57 |
| 4 | 73 7 22·0 | 0·28 | 0·0064094 | 15 52·9 | 15 58·1 | 58 16·7 | 58 35 |
| 5 | 74 4 46·4 | S. 0·14 | 0·0064675 | 16 3·2 | 16 8·2 | 58 54·8 | 59 13 |
| 6 | 75 2 10·1 | 0·00 | 0·0065237 | 16 12·9 | 16 17·3 | 59 30·4 | 59 46 |
| 7 | 75 59 33·2 | N. 0·12 | 0·0065777 | 16 21·1 | 16 24·4 | 60 0·4 | 60 12 |
| 8 | 76 56 55·9 | 0·23 | 0·0066294 | 16 26·9 | 16 28·5 | 60 21·6 | 60 27 |
| 9 | 77 54 17·8 | 0·32 | 0·0066788 | 16 29·2 | 16 28·9 | 60 30·0 | 60 28 |
| 10 | 78 51 39·4 | 0·38 | 0·0067257 | 16 27·5 | 16 25·1 | 60 23·9 | 60 15 |
| 11 | 79 49 0·4 | 0·41 | 0·0067701 | 16 21·7 | 16 17·3 | 60 2·4 | 59 46 |
| 12 | 80 46 20·7 | 0·42 | 0·0068120 | 16 12·1 | 16 6·3 | 59 27·4 | 59 5 |
| 13 | 81 43 40·3 | 0·40 | 0·0068514 | 15 59·8 | 15 53·0 | 58 42·3 | 58 17 |
| 14 | 82 40 59·2 | 0·34 | 0·0068883 | 15 46·0 | 15 38·8 | 57 51·4 | 57 25 |
| 15 | 83 38 17·3 | 0·26 | 0·0069227 | 15 31·7 | 15 24·9 | 56 59·1 | 56 34 |
| 16 | 84 35 34·6 | 0·16 | 0·0069547 | 15 18·3 | 15 12·3 | 56 10·1 | 55 47 |
| 17 | 85 32 51·0 | N. 0·04 | 0·0069843 | 15 6·7 | 15 1·7 | 55 27·2 | 55 8 |
| 18 | 86 30 6·7 | S. 0·09 | 0·0070117 | 14 57·3 | 14 53·6 | 54 52·9 | 54 39 |
| 19 | 87 27 21·7 | 0·22 | 0·0070370 | 14 50·6 | 14 48·3 | 54 28·3 | 54 19 |
| 20 | 88 24 35·9 | 0·34 | 0·0070604 | 14 46·6 | 14 45·6 | 54 13·7 | 54 10 |
| 21 | 89 21 49·4 | 0·45 | 0·0070819 | 14 45·3 | 14 45·6 | 54 8·7 | 54 9 |
| 22 | 90 19 2·4 | 0·54 | 0·0071016 | 14 46·4 | 14 47·9 | 54 13·0 | 54 18 |
| 23 | 91 16 14·9 | 0·61 | 0·0071197 | 14 49·8 | 14 52·1 | 54 25·2 | 54 33 |
| 24 | 92 13 26·9 | 0·66 | 0·0071363 | 14 54·9 | 14 58·0 | 54 43·9 | 54 55 |
| 25 | 93 10 38·6 | 0·67 | 0·0071513 | 15 1·4 | 15 5·0 | 55 7·9 | 55 21 |
| 26 | 94 7 49·9 | 0·66 | 0·0071649 | 15 8·9 | 15 13·0 | 55 35·4 | 55 50 |
| 27 | 95 5 1·0 | 0·61 | 0·0071771 | 15 17·1 | 15 21·4 | 56 5·4 | 56 21 |
| 28 | 96 2 11·9 | 0·53 | 0·0071879 | 15 25·6 | 15 29·7 | 56 36·6 | 56 51 |
| 29 | 96 59 22·8 | 0·43 | 0·0071971 | 15 33·9 | 15 38·0 | 57 7·3 | 57 22 |
| 30 | 97 56 33·8 | 0·31 | 0·0072048 | 15 42·0 | 15 45·8 | 57 36·7 | 57 50 |
| 31 | 98 53 44·8 | S. 0·18 | 0·0072109 | 15 49·5 | 15 53·0 | 58 4·4 | 58 17 |

## MEAN TIME.

| Day of the Week. | Day of the Month. | THE MOON'S Longitude. Noon. | Longitude. Midnight. | Latitude. Noon. | Latitude. Midnight. | Age. Noon. | Meridian Passage. |
|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | ° ′ ″ | ° ′ ″ | ° ′ ″ | d | h m |
| Sat. | 1 | 297 10 51 ·2 | 303 39 50 ·8 | S. 4 4 10 ·2 | S. 3 42 37 ·5 | 19 ·2 | 15 56 ·8 |
| *Sun.* | 2 | 310 12 3 ·9 | 316 47 41 ·6 | 3 17 58 ·6 | 2 50 26 ·8 | 20 ·2 | 16 47 ·1 |
| Mon. | 3 | 323 26 56 ·4 | 330 10 0 ·7 | 2 20 20 ·3 | 1 47 58 ·4 | 21 ·2 | 17 35 ·4 |
| Tues. | 4 | 336 57 6 ·6 | 343 48 26 ·6 | 1 13 45 ·2 | S. 0 38 6 ·0 | 22 ·2 | 18 22 ·4 |
| Wed. | 5 | 350 44 9 ·4 | 357 44 21 ·1 | S. 0 1 30 ·7 | N. 0 35 29 ·4 | 23 ·2 | 19 9 ·6 |
| Thur. | 6 | 4 49 2 ·7 | 11 58 9 ·0 | N. 1 12 19 ·3 | 1 48 22 ·7 | 24 ·2 | 19 58 ·2 |
| Frid. | 7 | 19 11 27 ·7 | 26 28 37 ·7 | 2 23 1 ·6 | 2 55 37 ·3 | 25 ·2 | 20 49 ·9 |
| Sat. | 8 | 33 49 8 ·7 | 41 12 20 ·3 | 3 25 31 ·3 | 3 52 8 ·6 | 26 ·2 | 21 45 ·7 |
| *Sun.* | 9 | 48 37 24 ·4 | 56 3 24 ·0 | 4 14 56 ·2 | 4 33 26 ·3 | 27 ·2 | 22 46 ·1 |
| Mon. | 10 | 63 29 17 ·5 | 70 53 58 ·3 | 4 47 17 ·2 | 4 56 15 ·4 | 28 ·2 | 23 50 ·0 |
| Tues. | 11 | 78 16 21 ·0 | 85 35 21 ·4 | 5 0 13 ·4 | 4 59 13 ·0 | 29 ·2 | ♂ |
| Wed. | 12 | 92 50 2 ·1 | 99 59 31 ·8 | 4 53 22 ·7 | 4 42 58 ·3 | 0 ·9 | 0 54 ·6 |
| Thur. | 13 | 107 3 11 ·1 | 114 0 28 ·9 | 4 28 20 ·0 | 4 9 53 ·2 | 1 ·9 | 1 56 ·7 |
| Frid. | 14 | 120 51 7 ·4 | 127 34 58 ·3 | 3 48 5 ·1 | 3 23 24 ·3 | 2 ·9 | 2 53 ·9 |
| Sat. | 15 | 134 12 5 ·0 | 140 42 38 ·1 | 2 56 20 ·4 | 2 27 22 ·1 | 3 ·9 | 3 45 ·4 |
| *Sun.* | 16 | 147 6 58 ·7 | 153 25 32 ·5 | 1 56 57 ·2 | 1 25 30 ·7 | 4 ·9 | 4 32 ·0 |
| Mon. | 17 | 159 38 51 ·6 | 165 47 31 ·0 | N. 0 53 27 ·4 | N. 0 21 8 ·8 | 5 ·9 | 5 14 ·8 |
| Tues. | 18 | 171 52 8 ·9 | 177 53 25 ·7 | S. 0 11 3 ·3 | S. 0 42 50 ·8 | 6 ·9 | 5 55 ·2 |
| Wed. | 19 | 183 52 1 ·6 | 189 48 38 ·0 | 1 13 55 ·8 | 1 44 1 ·4 | 7 ·9 | 6 34 ·6 |
| Thur. | 20 | 195 43 54 ·1 | 201 38 29 ·2 | 2 12 51 ·2 | 2 40 11 ·3 | 8 ·9 | 7 14 ·1 |
| Frid. | 21 | 207 33 0 ·5 | 213 28 1 ·8 | 3 5 46 ·6 | 3 29 22 ·3 | 9 ·9 | 7 55 ·1 |
| Sat. | 22 | 219 24 5 ·7 | 225 21 41 ·2 | 3 50 44 ·6 | 4 9 40 ·2 | 10 ·9 | 8 38 ·4 |
| *Sun.* | 23 | 231 21 14 ·5 | 237 23 8 ·0 | 4 25 56 ·2 | 4 39 19 ·7 | 11 ·9 | 9 24 ·9 |
| Mon. | 24 | 243 27 40 ·0 | 249 35 5 ·4 | 4 49 38 ·4 | 4 56 42 ·1 | 12 ·9 | 10 14 ·9 |
| Tues. | 25 | 255 45 35 ·4 | 261 59 16 ·5 | 5 0 21 ·2 | 5 0 28 ·2 | 13 ·9 | 11 8 ·1 |
| Wed. | 26 | 268 16 13 ·5 | 274 36 26 ·1 | 4 56 56 ·9 | 4 49 44 ·4 | 14 ·9 | 12 3 ·3 |
| Thur. | 27 | 280 59 52 ·8 | 287 26 29 ·7 | 4 38 50 ·4 | 4 24 17 ·5 | 15 ·9 | 12 58 ·7 |
| Frid. | 28 | 293 56 11 ·4 | 300 28 52 ·1 | 4 6 11 ·5 | 3 44 41 ·3 | 16 ·9 | 13 52 ·7 |
| Sat. | 29 | 307 4 25 ·4 | 313 42 46 ·2 | 3 20 0 ·0 | 2 52 23 ·5 | 17 ·9 | 14 44 ·3 |
| *Sun.* | 30 | 320 23 49 ·7 | 327 7 33 ·2 | 2 22 11 ·8 | 1 49 46 ·6 | 18 ·9 | 15 33 ·4 |
| Mon. | 31 | 333 53 53 ·8 | 340 42 52 ·8 | S. 1 15 33 ·8 | S. 0 40 0 ·4 | 19 ·9 | 16 20 ·6 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SATURDAY* 1. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 20 0 26·51 | S. 24 43 58·3 | 81·43 |
| 1 | 20 2 43·90 | 24 35 49·7 | 82·80 |
| 2 | 20 5 1·10 | 24 27 32·9 | 84·15 |
| 3 | 20 7 18·09 | 24 19 8·0 | 85·48 |
| 4 | 20 9 34·87 | 24 10 35·1 | 86·83 |
| 5 | 20 11 51·45 | 24 1 54·1 | 88·15 |
| 6 | 20 14 7·82 | 23 53 5·2 | 89·47 |
| 7 | 20 16 23·98 | 23 44 8·4 | 90·78 |
| 8 | 20 18 39·93 | 23 35 3·7 | 92·08 |
| 9 | 20 20 55·67 | 23 25 51·2 | 93·38 |
| 10 | 20 23 11·18 | 23 16 30·9 | 94·65 |
| 11 | 20 25 26·49 | 23 7 3·0 | 95·93 |
| 12 | 20 27 41·57 | 22 57 27·4 | 97·20 |
| 13 | 20 29 56·44 | 22 47 44·2 | 98·45 |
| 14 | 20 32 11·08 | 22 37 53·5 | 99·70 |
| 15 | 20 34 25·51 | 22 27 55·3 | 100·93 |
| 16 | 20 36 39·71 | 22 17 49·7 | 102·17 |
| 17 | 20 38 53·70 | 22 7 36·7 | 103·37 |
| 18 | 20 41 7·46 | 21 57 16·5 | 104·60 |
| 19 | 20 43 21·00 | 21 46 48·9 | 105·80 |
| 20 | 20 45 34·31 | 21 36 14·1 | 106·97 |
| 21 | 20 47 47·40 | 21 25 32·3 | 108·17 |
| 22 | 20 50 0·28 | 21 14 43·3 | 109·33 |
| 23 | 20 52 12·92 | S. 21 3 47·3 | 110·50 |
| | *SUNDAY* 2. | | |
| 0 | 20 54 25·35 | S. 20 52 44·3 | 111·65 |
| 1 | 20 56 37·55 | 20 41 34·4 | 112·78 |
| 2 | 20 58 49·54 | 20 30 17·7 | 113·92 |
| 3 | 21 1 1·30 | 20 18 54·2 | 115·05 |
| 4 | 21 3 12·84 | 20 7 23·9 | 116·15 |
| 5 | 21 5 24·17 | 19 55 47·0 | 117·25 |
| 6 | 21 7 35·28 | 19 44 3·5 | 118·33 |
| 7 | 21 9 46·17 | 19 32 13·5 | 119·42 |
| 8 | 21 11 56·85 | 19 20 17·0 | 120·48 |
| 9 | 21 14 7·31 | 19 8 14·1 | 121·55 |
| 10 | 21 16 17·57 | 18 56 4·8 | 122·58 |
| 11 | 21 18 27·61 | 18 43 49·3 | 123·63 |
| 12 | 21 20 37·44 | 18 31 27·5 | 124·65 |
| 13 | 21 22 47·07 | 18 18 59·6 | 125·67 |
| 14 | 21 24 56·49 | 18 6 25·6 | 126·67 |
| 15 | 21 27 5·71 | 17 53 45·6 | 127·67 |
| 16 | 21 29 14·73 | 17 40 59·6 | 128·65 |
| 17 | 21 31 23·56 | 17 28 7·7 | 129·62 |
| 18 | 21 33 32·18 | 17 15 10·0 | 130·58 |
| 19 | 21 35 40·61 | 17 2 6·5 | 131·55 |
| 20 | 21 37 48·85 | 16 48 57·2 | 132·47 |
| 21 | 21 39 56·91 | 16 35 42·4 | 133·40 |
| 22 | 21 42 4·77 | 16 22 22·0 | 134·33 |
| 23 | 21 44 12·45 | 16 8 56·0 | 135·23 |
| 24 | 21 46 19·95 | S. 15 55 24·6 | |

| Hour. | Right Ascension. | Declination. |
|---|---|---|
| | *MONDAY* 3. | |
| | h m s | ° ′ ″ |
| 0 | 21 46 19·95 | S. 15 55 24·6 |
| 1 | 21 48 27·27 | 15 41 47·8 |
| 2 | 21 50 34·42 | 15 28 5·7 |
| 3 | 21 52 41·39 | 15 14 18·3 |
| 4 | 21 54 48·20 | 15 0 25·8 |
| 5 | 21 56 54·83 | 14 46 28·1 |
| 6 | 21 59 1·31 | 14 32 25·4 |
| 7 | 22 1 7·63 | 14 18 17·8 |
| 8 | 22 3 13·79 | 14 4 5·2 |
| 9 | 22 5 19·80 | 13 49 47·7 |
| 10 | 22 7 25·66 | 13 35 25·5 |
| 11 | 22 9 31·38 | 13 20 58·6 |
| 12 | 22 11 36·95 | 13 6 27·1 |
| 13 | 22 13 42·39 | 12 51 51·0 |
| 14 | 22 15 47·69 | 12 37 10·5 |
| 15 | 22 17 52·86 | 12 22 25·5 |
| 16 | 22 19 57·91 | 12 7 36·1 |
| 17 | 22 22 2·84 | 11 52 42·4 |
| 18 | 22 24 7·65 | 11 37 44·5 |
| 19 | 22 26 12·35 | 11 22 42·5 |
| 20 | 22 28 16·93 | 11 7 36·4 |
| 21 | 22 30 21·42 | 10 52 26·2 |
| 22 | 22 32 25·80 | 10 37 12·1 |
| 23 | 22 34 30·09 | S. 10 21 54·1 |
| | *TUESDAY* 4. | |
| 0 | 22 36 34·29 | S. 10 6 32·3 |
| 1 | 22 38 38·40 | 9 51 6·7 |
| 2 | 22 40 42·43 | 9 35 37·5 |
| 3 | 22 42 46·38 | 9 20 4·6 |
| 4 | 22 44 50·26 | 9 4 28·3 |
| 5 | 22 46 54·08 | 8 48 48·4 |
| 6 | 22 48 57·82 | 8 33 5·2 |
| 7 | 22 51 1·51 | 8 17 18·7 |
| 8 | 22 53 5·15 | 8 1 29·0 |
| 9 | 22 55 8·73 | 7 45 36·0 |
| 10 | 22 57 12·27 | 7 29 40·0 |
| 11 | 22 59 15·77 | 7 13 41·0 |
| 12 | 23 1 19·24 | 6 57 39·0 |
| 13 | 23 3 22·68 | 6 41 34·2 |
| 14 | 23 5 26·09 | 6 25 26·6 |
| 15 | 23 7 29·48 | 6 9 16·2 |
| 16 | 23 9 32·86 | 5 53 3·2 |
| 17 | 23 11 36·23 | 5 36 47·7 |
| 18 | 23 13 39·60 | 5 20 29·6 |
| 19 | 23 15 42·97 | 5 4 9·2 |
| 20 | 23 17 46·35 | 4 47 46·4 |
| 21 | 23 19 49·74 | 4 31 21·3 |
| 22 | 23 21 53·14 | 4 14 54·0 |
| 23 | 23 23 56·57 | 3 58 24·6 |
| 24 | 23 26 0·03 | S. 3 41 53·2 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. |
|---|---|---|---|
| | *WEDNESDAY* 5. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 23 26 0 ·03 | S. 3 41 53 ·2 | 165 ·57 |
| 1 | 23 28 3 ·52 | 3 25 19 ·8 | 165 ·88 |
| 2 | 23 30 7 ·06 | 3 8 44 ·5 | 166 ·17 |
| 3 | 23 32 10 ·63 | 2 52 7 ·5 | 166 ·47 |
| 4 | 23 34 14 ·26 | 2 35 28 ·7 | 166 ·73 |
| 5 | 23 36 17 ·94 | 2 18 48 ·3 | 167 ·00 |
| 6 | 23 38 21 ·68 | 2 2 6 ·3 | 167 ·25 |
| 7 | 23 40 25 ·49 | 1 45 22 ·8 | 167 ·48 |
| 8 | 23 42 29 ·37 | 1 28 37 ·9 | 167 ·68 |
| 9 | 23 44 33 ·34 | 1 11 51 ·8 | 167 ·90 |
| 10 | 23 46 37 ·38 | 0 55 4 ·4 | 168 ·10 |
| 11 | 23 48 41 ·51 | 0 38 15 ·8 | 168 ·27 |
| 12 | 23 50 45 ·74 | 0 21 26 ·2 | 168 ·43 |
| 13 | 23 52 50 ·07 | S. 0 4 35 ·6 | 168 ·58 |
| 14 | 23 54 54 ·51 | N. 0 12 15 ·9 | 168 ·72 |
| 15 | 23 56 59 ·06 | 0 29 8 ·2 | 168 ·83 |
| 16 | 23 59 3 ·72 | 0 46 1 ·2 | 168 ·93 |
| 17 | 0 1 8 ·51 | 1 2 54 ·8 | 169 ·03 |
| 18 | 0 3 13 ·43 | 1 19 49 ·0 | 169 ·12 |
| 19 | 0 5 18 ·48 | 1 36 43 ·7 | 169 ·17 |
| 20 | 0 7 23 ·68 | 1 53 38 ·7 | 169 ·22 |
| 21 | 0 9 29 ·02 | 2 10 34 ·0 | 169 ·25 |
| 22 | 0 11 34 ·52 | 2 27 29 ·5 | 169 ·27 |
| 23 | 0 13 40 ·17 | N. 2 44 25 ·1 | 169 ·27 |
| | *THURSDAY* 6. | | |
| 0 | 0 15 45 ·98 | N. 3 1 20 ·7 | 169 ·25 |
| 1 | 0 17 51 ·97 | 3 18 16 ·2 | 169 ·23 |
| 2 | 0 19 58 ·13 | 3 35 11 ·6 | 169 ·18 |
| 3 | 0 22 4 ·48 | 3 52 6 ·7 | 169 ·12 |
| 4 | 0 24 11 ·01 | 4 9 1 ·4 | 169 ·05 |
| 5 | 0 26 17 ·73 | 4 25 55 ·7 | 168 ·95 |
| 6 | 0 28 24 ·66 | 4 42 49 ·4 | 168 ·85 |
| 7 | 0 30 31 ·78 | 4 59 42 ·5 | 168 ·73 |
| 8 | 0 32 39 ·12 | 5 16 34 ·9 | 168 ·58 |
| 9 | 0 34 46 ·67 | 5 33 26 ·4 | 168 ·43 |
| 10 | 0 36 54 ·45 | 5 50 17 ·0 | 168 ·25 |
| 11 | 0 39 2 ·45 | 6 7 6 ·5 | 168 ·07 |
| 12 | 0 41 10 ·68 | 6 23 54 ·9 | 167 ·87 |
| 13 | 0 43 19 ·15 | 6 40 42 ·1 | 167 ·63 |
| 14 | 0 45 27 ·87 | 6 57 27 ·9 | 167 ·40 |
| 15 | 0 47 36 ·83 | 7 14 12 ·3 | 167 ·15 |
| 16 | 0 49 46 ·05 | 7 30 55 ·2 | 166 ·87 |
| 17 | 0 51 55 ·54 | 7 47 36 ·4 | 166 ·58 |
| 18 | 0 54 5 ·28 | 8 4 15 ·9 | 166 ·27 |
| 19 | 0 56 15 ·30 | 8 20 53 ·5 | 165 ·93 |
| 20 | 0 58 25 ·60 | 8 37 29 ·1 | 165 ·60 |
| 21 | 1 0 36 ·18 | 8 54 2 ·7 | 165 ·25 |
| 22 | 1 2 47 ·05 | 9 10 34 ·2 | 164 ·85 |
| | 1 4 58 ·22 | 9 27 3 ·3 | 164 ·47 |
| | ·8 | N. 9 43 30 ·1 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. |
|---|---|---|---|
| | *FRIDAY* 7. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 1 7 9 ·68 | N. 9 43 30 ·1 | 164 ·05 |
| 1 | 1 9 21 ·45 | 9 59 54 ·4 | 163 ·62 |
| 2 | 1 11 33 ·52 | 10 16 16 ·1 | 163 ·15 |
| 3 | 1 13 45 ·91 | 10 32 35 ·0 | 162 ·70 |
| 4 | 1 15 58 ·63 | 10 48 51 ·2 | 162 ·20 |
| 5 | 1 18 11 ·66 | 11 5 4 ·4 | 161 ·68 |
| 6 | 1 20 25 ·03 | 11 21 14 ·5 | 161 ·15 |
| 7 | 1 22 38 ·73 | 11 37 21 ·4 | 160 ·62 |
| 8 | 1 24 52 ·78 | 11 53 25 ·1 | 160 ·05 |
| 9 | 1 27 7 ·16 | 12 9 25 ·4 | 159 ·45 |
| 10 | 1 29 21 ·90 | 12 25 22 ·1 | 158 ·85 |
| 11 | 1 31 36 ·99 | 12 41 15 ·2 | 158 ·23 |
| 12 | 1 33 52 ·44 | 12 57 4 ·6 | 157 ·58 |
| 13 | 1 36 8 ·26 | 13 12 50 ·1 | 156 ·92 |
| 14 | 1 38 24 ·44 | 13 28 31 ·6 | 156 ·22 |
| 15 | 1 40 40 ·99 | 13 44 8 ·9 | 155 ·53 |
| 16 | 1 42 57 ·92 | 13 59 42 ·1 | 154 ·80 |
| 17 | 1 45 15 ·23 | 14 15 10 ·9 | 154 ·05 |
| 18 | 1 47 32 ·92 | 14 30 35 ·2 | 153 ·28 |
| 19 | 1 49 51 ·00 | 14 45 54 ·9 | 152 ·50 |
| 20 | 1 52 9 ·48 | 15 1 9 ·9 | 151 ·70 |
| 21 | 1 54 28 ·34 | 15 16 20 ·1 | 150 ·87 |
| 22 | 1 56 47 ·61 | 15 31 25 ·3 | 150 ·03 |
| 23 | 1 59 7 ·27 | N. 15 46 25 ·5 | 149 ·15 |
| | *SATURDAY* 8. | | |
| 0 | 2 1 27 ·34 | N. 16 1 20 ·4 | 148 ·27 |
| 1 | 2 3 47 ·82 | 16 16 10 ·0 | 147 ·37 |
| 2 | 2 6 8 ·71 | 16 30 54 ·2 | 146 ·43 |
| 3 | 2 8 30 ·02 | 16 45 32 ·8 | 145 ·48 |
| 4 | 2 10 51 ·74 | 17 0 5 ·7 | 144 ·50 |
| 5 | 2 13 13 ·88 | 17 14 32 ·7 | 143 ·52 |
| 6 | 2 15 36 ·45 | 17 28 53 ·8 | 142 ·50 |
| 7 | 2 17 59 ·44 | 17 43 8 ·8 | 141 ·45 |
| 8 | 2 20 22 ·85 | 17 57 17 ·5 | 140 ·40 |
| 9 | 2 22 46 ·70 | 18 11 19 ·9 | 139 ·33 |
| 10 | 2 25 10 ·97 | 18 25 15 ·9 | 138 ·23 |
| 11 | 2 27 35 ·68 | 18 39 5 ·3 | 137 ·10 |
| 12 | 2 30 0 ·82 | 18 52 47 ·9 | 135 ·97 |
| 13 | 2 32 26 ·40 | 19 6 23 ·7 | 134 ·80 |
| 14 | 2 34 52 ·41 | 19 19 52 ·5 | 133 ·62 |
| 15 | 2 37 18 ·86 | 19 33 14 ·2 | 132 ·40 |
| 16 | 2 39 45 ·75 | 19 46 28 ·6 | 131 ·18 |
| 17 | 2 42 13 ·08 | 19 59 35 ·7 | 129 ·93 |
| 18 | 2 44 40 ·84 | 20 12 35 ·3 | 128 ·67 |
| 19 | 2 47 9 ·04 | 20 25 27 ·3 | 127 ·37 |
| 20 | 2 49 37 ·69 | 20 38 11 ·5 | 126 ·05 |
| 21 | 2 52 6 ·76 | 20 50 47 ·8 | 124 ·73 |
| 22 | 2 54 36 ·28 | 21 3 16 ·2 | 123 ·37 |
| 23 | 2 57 6 ·23 | 21 15 36 ·4 | 122 ·00 |
| 24 | 2 59 36 ·61 | N. 21 27 48 ·4 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SUNDAY* 9. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 2 59 36·61 | N.21 27 48·4 | 120·60 |
| 1 | 3 2 7·43 | 21 39 52·0 | 119·20 |
| 2 | 3 4 38·68 | 21 51 47·2 | 117·75 |
| 3 | 3 7 10·36 | 22 3 33·7 | 116·28 |
| 4 | 3 9 42·46 | 22 15 11·4 | 114·82 |
| 5 | 3 12 15·00 | 22 26 40·3 | 113·32 |
| 6 | 3 14 47·95 | 22 38 0·2 | 111·80 |
| 7 | 3 17 21·33 | 22 49 11·0 | 110·25 |
| 8 | 3 19 55·12 | 23 0 12·5 | 108·70 |
| 9 | 3 22 29·33 | 23 11 4·7 | 107·13 |
| 10 | 3 25 3·95 | 23 21 47·5 | 105·53 |
| 11 | 3 27 38·97 | 23 32 20·7 | 103·92 |
| 12 | 3 30 14·39 | 23 42 44·2 | 102·28 |
| 13 | 3 32 50·22 | 23 52 57·9 | 100·63 |
| 14 | 3 35 26·44 | 24 3 1·7 | 98·95 |
| 15 | 3 38 3·05 | 24 12 55·4 | 97·27 |
| 16 | 3 40 40·04 | 24 22 39·0 | 95·57 |
| 17 | 3 43 17·40 | 24 32 12·4 | 93·83 |
| 18 | 3 45 55·14 | 24 41 35·4 | 92·10 |
| 19 | 3 48 33·24 | 24 50 48·0 | 90·33 |
| 20 | 3 51 11·71 | 24 59 50·0 | 88·57 |
| 21 | 3 53 50·52 | 25 8 41·4 | 86·77 |
| 22 | 3 56 29·68 | 25 17 22·0 | 84·97 |
| 23 | 3 59 9·17 | N.25 25 51·8 | 83·15 |
| | *MONDAY* 10. | | |
| 0 | 4 1 49·00 | N.25 34 10·7 | 81·32 |
| 1 | 4 4 29·15 | 25 42 18·6 | 79·45 |
| 2 | 4 7 9·61 | 25 50 15·3 | 77·60 |
| 3 | 4 9 50·39 | 25 58 0·9 | 75·70 |
| 4 | 4 12 31·45 | 26 5 35·1 | 73·82 |
| 5 | 4 15 12·81 | 26 12 58·0 | 71·90 |
| 6 | 4 17 54·45 | 26 20 9·4 | 69·98 |
| 7 | 4 20 36·36 | 26 27 9·3 | 68·05 |
| 8 | 4 23 18·53 | 26 33 57·6 | 66·10 |
| 9 | 4 26 0·95 | 26 40 34·2 | 64·15 |
| 10 | 4 28 43·62 | 26 46 59·1 | 62·17 |
| 11 | 4 31 26·52 | 26 53 12·1 | 60·20 |
| 12 | 4 34 9·64 | 26 59 13·3 | 58·20 |
| 13 | 4 36 52·98 | 27 5 2·5 | 56·20 |
| 14 | 4 39 36·52 | 27 10 39·7 | 54·18 |
| 15 | 4 42 20·24 | 27 16 4·8 | 52·18 |
| 16 | 4 45 4·15 | 27 21 17·9 | 50·13 |
| 17 | 4 47 48·22 | 27 26 18·7 | 48·12 |
| 18 | 4 50 32·45 | 27 31 7·4 | 46·07 |
| 19 | 4 53 16·81 | 27 35 43·8 | 44·02 |
| 20 | 4 56 1·31 | 27 40 7·9 | 41·97 |
| 21 | 4 58 45·94 | 27 44 19·7 | 39·92 |
| 22 | 5 1 30·66 | 27 48 19·2 | 37·85 |
| 23 | 5 4 15·48 | 27 52 6·3 | 35·77 |
| 24 | 5 7 0·39 | N.27 55 40·9 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 11. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 5 7 0·39 | N.27 55 40·9 | 33·70 |
| 1 | 5 9 45·37 | 27 59 3·1 | 31·62 |
| 2 | 5 12 30·40 | 28 2 12·8 | 29·55 |
| 3 | 5 15 15·48 | 28 5 10·1 | 27·45 |
| 4 | 5 18 0·59 | 28 7 54·8 | 25·38 |
| 5 | 5 20 45·71 | 28 10 27·1 | 23·30 |
| 6 | 5 23 30·85 | 28 12 46·9 | 21·20 |
| 7 | 5 26 15·98 | 28 14 54·1 | 19·12 |
| 8 | 5 29 1·09 | 28 16 48·8 | 17·05 |
| 9 | 5 31 46·17 | 28 18 31·1 | 14·95 |
| 10 | 5 34 31·20 | 28 20 0·8 | 12·87 |
| 11 | 5 37 16·18 | 28 21 18·0 | 10·78 |
| 12 | 5 40 1·09 | 28 22 22·7 | 8·70 |
| 13 | 5 42 45·92 | 28 23 14·9 | 6·63 |
| 14 | 5 45 30·66 | 28 23 54·7 | 4·55 |
| 15 | 5 48 15·28 | 28 24 22·0 | 2·50 |
| 16 | 5 50 59·78 | 28 24 37·0 | 0·42 |
| 17 | 5 53 44·15 | 28 24 39·6 | 1·63 |
| 18 | 5 56 28·37 | 28 24 29·8 | 3·68 |
| 19 | 5 59 12·43 | 28 24 7·7 | 5·72 |
| 20 | 6 1 56·31 | 28 23 33·4 | 7·77 |
| 21 | 6 4 40·01 | 28 22 46·8 | 9·78 |
| 22 | 6 7 23·52 | 28 21 48·1 | 11·82 |
| 23 | 6 10 6·82 | N.28 20 37·2 | 13·83 |
| | *WEDNESDAY* 12. | | |
| 0 | 6 12 49·89 | N.28 19 14·2 | 15·83 |
| 1 | 6 15 32·73 | 28 17 39·2 | 17·83 |
| 2 | 6 18 15·32 | 28 15 52·2 | 19·82 |
| 3 | 6 20 57·65 | 28 13 53·3 | 21·80 |
| 4 | 6 23 39·72 | 28 11 42·5 | 23·75 |
| 5 | 6 26 21·51 | 28 9 20·0 | 25·72 |
| 6 | 6 29 3·00 | 28 6 45·7 | 27·67 |
| 7 | 6 31 44·20 | 28 3 59·7 | 29·58 |
| 8 | 6 34 25·08 | 28 1 2·2 | 31·52 |
| 9 | 6 37 5·64 | 27 57 53·1 | 33·42 |
| 10 | 6 39 45·87 | 27 54 32·6 | 35·30 |
| 11 | 6 42 25·76 | 27 51 0·8 | 37·20 |
| 12 | 6 45 5·30 | 27 47 17·6 | 39·07 |
| 13 | 6 47 44·48 | 27 43 23·2 | 40·92 |
| 14 | 6 50 23·29 | 27 39 17·7 | 42·75 |
| 15 | 6 53 1·72 | 27 35 1·2 | 44·57 |
| 16 | 6 55 39·76 | 27 30 33·8 | 46·38 |
| 17 | 6 58 17·41 | 27 25 55·5 | 48·18 |
| 18 | 7 0 54·65 | 27 21 6·4 | 49·95 |
| 19 | 7 3 31·48 | 27 16 6·7 | 51·72 |
| 20 | 7 6 7·89 | 27 10 56·4 | 53·45 |
| 21 | 7 8 43·87 | 27 5 35·7 | 55·18 |
| 22 | 7 11 19·41 | 27 0 4·6 | 56·90 |
| 23 | 7 13 54·52 | 26 54 23·2 | 58·60 |
| 24 | 7 16 29·17 | N.26 48 31·6 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. | Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. |
|---|---|---|---|---|---|---|---|
| | *THURSDAY* 13. | | | | *SATURDAY* 15. | | |
| | h m s | ° ′ ″ | ″ | | h m s | ° ′ ″ | ″ |
| 0 | 7 16 29 ·17 | N.26 48 31 ·6 | 60 ·27 | 0 | 9 10 17 ·92 | N.19 23 44 ·3 | 119 ·22 |
| 1 | 7 19 3 ·37 | 26 42 30 ·0 | 61 ·93 | 1 | 9 12 27 ·58 | 19 11 49 ·0 | 120 ·02 |
| 2 | 7 21 37 ·10 | 26 36 18 ·4 | 63 ·57 | 2 | 9 14 36 ·75 | 18 59 48 ·9 | 120 ·77 |
| 3 | 7 24 10 ·37 | 26 29 57 ·0 | 65 ·20 | 3 | 9 16 45 ·44 | 18 47 44 ·2 | 121 ·55 |
| 4 | 7 26 43 ·17 | 26 23 25 ·8 | 66 ·82 | 4 | 9 18 53 ·66 | 18 35 34 ·9 | 122 ·28 |
| 5 | 7 29 15 ·48 | 26 16 44 ·9 | 68 ·38 | 5 | 9 21 1 ·40 | 18 23 21 ·2 | 123 ·02 |
| 6 | 7 31 47 ·32 | 26 9 54 ·6 | 69 ·97 | 6 | 9 23 8 ·67 | 18 11 3 ·1 | 123 ·72 |
| 7 | 7 34 18 ·67 | 26 2 54 ·8 | 71 ·52 | 7 | 9 25 15 ·48 | 17 58 40 ·8 | 124 ·43 |
| 8 | 7 36 49 ·52 | 25 55 45 ·7 | 73 ·07 | 8 | 9 27 21 ·83 | 17 46 14 ·2 | 125 ·10 |
| 9 | 7 39 19 ·88 | 25 48 27 ·3 | 74 ·57 | 9 | 9 29 27 ·72 | 17 33 43 ·6 | 125 ·77 |
| 10 | 7 41 49 ·74 | 25 40 59 ·9 | 76 ·07 | 10 | 9 31 33 ·15 | 17 21 9 ·0 | 126 ·42 |
| 11 | 7 44 19 ·09 | 25 33 23 ·5 | 77 ·55 | 11 | 9 33 38 ·14 | 17 8 30 ·5 | 127 ·07 |
| 12 | 7 46 47 ·94 | 25 25 38 ·2 | 79 ·02 | 12 | 9 35 42 ·68 | 16 55 48 ·1 | 127 ·68 |
| 13 | 7 49 16 ·28 | 25 17 44 ·1 | 80 ·45 | 13 | 9 37 46 ·79 | 16 43 2 ·0 | 128 ·28 |
| 14 | 7 51 44 ·10 | 25 9 41 ·4 | 81 ·87 | 14 | 9 39 50 ·46 | 16 30 12 ·3 | 128 ·88 |
| 15 | 7 54 11 ·40 | 25 1 30 ·2 | 83 ·27 | 15 | 9 41 53 ·70 | 16 17 19 ·0 | 129 ·47 |
| 16 | 7 56 38 ·19 | 24 53 10 ·6 | 84 ·67 | 16 | 9 43 56 ·51 | 16 4 22 ·2 | 130 ·02 |
| 17 | 7 59 4 ·46 | 24 44 42 ·6 | 86 ·03 | 17 | 9 45 58 ·91 | 15 51 22 ·1 | 130 ·58 |
| 18 | 8 1 30 ·20 | 24 36 6 ·4 | 87 ·37 | 18 | 9 48 0 ·89 | 15 38 18 ·6 | 131 ·12 |
| 19 | 8 3 55 ·41 | 24 27 22 ·2 | 88 ·72 | 19 | 9 50 2 ·45 | 15 25 11 ·9 | 131 ·65 |
| 20 | 8 6 20 ·10 | 24 18 29 ·9 | 90 ·02 | 20 | 9 52 3 ·61 | 15 12 2 ·0 | 132 ·15 |
| 21 | 8 8 44 ·26 | 24 9 29 ·8 | 91 ·30 | 21 | 9 54 4 ·37 | 14 58 49 ·1 | 132 ·67 |
| 22 | 8 11 7 ·90 | 24 0 22 ·0 | 92 ·58 | 22 | 9 56 4 ·73 | 14 45 33 ·1 | 133 ·13 |
| 23 | 8 13 31 ·00 | N.23 51 6 ·5 | 93 ·83 | 23 | 9 58 4 ·70 | N.14 32 14 ·3 | 133 ·62 |
| | *FRIDAY* 14. | | | | *SUNDAY* 16. | | |
| 0 | 8 15 53 ·57 | N.23 41 43 ·5 | 95 ·07 | 0 | 10 0 4 ·28 | N.14 18 52 ·6 | 134 ·07 |
| 1 | 8 18 15 ·61 | 23 32 13 ·1 | 96 ·28 | 1 | 10 2 3 ·48 | 14 5 28 ·2 | 134 ·53 |
| 2 | 8 20 37 ·11 | 23 22 35 ·4 | 97 ·47 | 2 | 10 4 2 ·30 | 13 52 1 ·0 | 134 ·95 |
| 3 | 8 22 58 ·09 | 23 12 50 ·6 | 98 ·67 | 3 | 10 6 0 ·75 | 13 38 31 ·3 | 135 ·38 |
| 4 | 8 25 18 ·54 | 23 2 58 ·6 | 99 ·82 | 4 | 10 7 58 ·83 | 13 24 59 ·0 | 135 ·80 |
| 5 | 8 27 38 ·45 | 22 52 59 ·7 | 100 ·95 | 5 | 10 9 56 ·54 | 13 11 24 ·2 | 136 ·20 |
| 6 | 8 29 57 ·83 | 22 42 54 ·0 | 102 ·08 | 6 | 10 11 53 ·91 | 12 57 47 ·0 | 136 ·58 |
| 7 | 8 32 16 ·69 | 22 32 41 ·5 | 103 ·18 | 7 | 10 13 50 ·92 | 12 44 7 ·5 | 136 ·95 |
| 8 | 8 34 35 ·02 | 22 22 22 ·4 | 104 ·27 | 8 | 10 15 47 ·58 | 12 30 25 ·8 | 137 ·32 |
| 9 | 8 36 52 ·82 | 22 11 56 ·8 | 105 ·33 | 9 | 10 17 43 ·90 | 12 16 41 ·9 | 137 ·68 |
| 10 | 8 39 10 ·10 | 22 1 24 ·8 | 106 ·38 | 10 | 10 19 39 ·89 | 12 2 55 ·8 | 138 ·02 |
| 11 | 8 41 26 ·85 | 21 50 46 ·5 | 107 ·42 | 11 | 10 21 35 ·54 | 11 49 7 ·7 | 138 ·35 |
| 12 | 8 43 43 ·08 | 21 40 2 ·0 | 108 ·43 | 12 | 10 23 30 ·87 | 11 35 17 ·6 | 138 ·67 |
| 13 | 8 45 58 ·79 | 21 29 11 ·4 | 109 ·42 | 13 | 10 25 25 ·88 | 11 21 25 ·6 | 138 ·98 |
| 14 | 8 48 13 ·98 | 21 18 14 ·9 | 110 ·40 | 14 | 10 27 20 ·58 | 11 7 31 ·7 | 139 ·27 |
| 15 | 8 50 28 ·66 | 21 7 12 ·5 | 111 ·35 | 15 | 10 29 14 ·96 | 10 53 36 ·1 | 139 ·57 |
| 16 | 8 52 42 ·82 | 20 56 4 ·4 | 112 ·30 | 16 | 10 31 9 ·04 | 10 39 38 ·7 | 139 ·85 |
| 17 | 8 54 56 ·47 | 20 44 50 ·6 | 113 ·23 | 17 | 10 33 2 ·82 | 10 25 39 ·6 | 140 ·12 |
| 18 | 8 57 9 ·61 | 20 33 31 ·2 | 114 ·13 | 18 | 10 34 56 ·31 | 10 11 38 ·9 | 140 ·37 |
| 19 | 8 59 22 ·24 | 20 22 6 ·4 | 115 ·02 | 19 | 10 36 49 ·51 | 9 57 36 ·7 | 140 ·62 |
| 20 | 9 1 34 ·37 | 20 10 36 ·3 | 115 ·90 | 20 | 10 38 42 ·43 | 9 43 33 ·0 | 140 ·85 |
| 21 | 9 3 46 ·00 | 19 59 0 ·9 | 116 ·75 | 21 | 10 40 35 ·07 | 9 29 27 ·9 | 141 ·08 |
| 22 | 9 5 57 ·14 | 19 47 20 ·4 | 117 ·60 | 22 | 10 42 27 ·44 | 9 15 21 ·4 | 141 ·30 |
| 23 | 9 8 7 ·77 | 19 35 34 ·8 | 118 ·42 | 23 | 10 44 19 ·53 | 9 1 13 ·6 | 141 ·50 |
| 24 | 9 10 17 ·92 | N.19 23 44 ·3 | | 24 | 10 46 11 ·37 | N. 8 47 4 ·6 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *MONDAY* 17. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 10 46 11 ·37 | N.8 47 4 ·6 | 141 ·70 |
| 1 | 10 48 2 ·95 | 8 32 54 ·4 | 141 ·90 |
| 2 | 10 49 54 ·27 | 8 18 43 ·0 | 142 ·08 |
| 3 | 10 51 45 ·35 | 8 4 30 ·5 | 142 ·23 |
| 4 | 10 53 36 ·19 | 7 50 17 ·1 | 142 ·42 |
| 5 | 10 55 26 ·80 | 7 36 2 ·6 | 142 ·57 |
| 6 | 10 57 17 ·17 | 7 21 47 ·2 | 142 ·70 |
| 7 | 10 59 7 ·32 | 7 7 31 ·0 | 142 ·85 |
| 8 | 11 0 57 ·25 | 6 53 13 ·9 | 142 ·97 |
| 9 | 11 2 46 ·97 | 6 38 56 ·1 | 143 ·08 |
| 10 | 11 4 36 ·47 | 6 24 37 ·6 | 143 ·20 |
| 11 | 11 6 25 ·78 | 6 10 18 ·4 | 143 ·30 |
| 12 | 11 8 14 ·88 | 5 55 58 ·6 | 143 ·40 |
| 13 | 11 10 3 ·79 | 5 41 38 ·2 | 143 ·48 |
| 14 | 11 11 52 ·51 | 5 27 17 ·3 | 143 ·55 |
| 15 | 11 13 41 ·06 | 5 12 56 ·0 | 143 ·63 |
| 16 | 11 15 29 ·42 | 4 58 34 ·2 | 143 ·68 |
| 17 | 11 17 17 ·61 | 4 44 12 ·1 | 143 ·73 |
| 18 | 11 19 5 ·63 | 4 29 49 ·7 | 143 ·78 |
| 19 | 11 20 53 ·49 | 4 15 27 ·0 | 143 ·82 |
| 20 | 11 22 41 ·20 | 4 1 4 ·1 | 143 ·85 |
| 21 | 11 24 28 ·75 | 3 46 41 ·0 | 143 ·87 |
| 22 | 11 26 16 ·16 | 3 32 17 ·8 | 143 ·88 |
| 23 | 11 28 3 ·42 | N.3 17 54 ·5 | 143 ·88 |
| | *TUESDAY* 18. | | |
| 0 | 11 29 50 ·55 | N.3 3 31 ·2 | 143 ·88 |
| 1 | 11 31 37 ·55 | 2 49 7 ·9 | 143 ·87 |
| 2 | 11 33 24 ·42 | 2 34 44 ·7 | 143 ·85 |
| 3 | 11 35 11 ·18 | 2 20 21 ·6 | 143 ·83 |
| 4 | 11 36 57 ·81 | 2 5 58 ·6 | 143 ·80 |
| 5 | 11 38 44 ·34 | 1 51 35 ·8 | 143 ·77 |
| 6 | 11 40 30 ·76 | 1 37 13 ·2 | 143 ·73 |
| 7 | 11 42 17 ·08 | 1 22 50 ·8 | 143 ·67 |
| 8 | 11 44 3 ·30 | 1 8 28 ·8 | 143 ·62 |
| 9 | 11 45 49 ·43 | 0 54 7 ·1 | 143 ·53 |
| 10 | 11 47 35 ·48 | 0 39 45 ·9 | 143 ·48 |
| 11 | 11 49 21 ·45 | 0 25 25 ·0 | 143 ·40 |
| 12 | 11 51 7 ·34 | N.0 11 4 ·6 | 143 ·32 |
| 13 | 11 52 53 ·16 | S.0 3 15 ·3 | 143 ·23 |
| 14 | 11 54 38 ·91 | 0 17 34 ·7 | 143 ·13 |
| 15 | 11 56 24 ·61 | 0 31 53 ·5 | 143 ·02 |
| 16 | 11 58 10 ·25 | 0 46 11 ·6 | 142 ·92 |
| 17 | 11 59 55 ·83 | 1 0 29 ·1 | 142 ·80 |
| 18 | 12 1 41 ·38 | 1 14 45 ·9 | 142 ·67 |
| 19 | 12 3 26 ·88 | 1 29 1 ·9 | 142 ·55 |
| 20 | 12 5 12 ·34 | 1 43 17 ·2 | 142 ·40 |
| 21 | 12 6 57 ·78 | 1 57 31 ·6 | 142 ·27 |
| 22 | 12 8 43 ·18 | 2 11 45 ·2 | 142 ·12 |
| 23 | 12 10 28 ·57 | 2 25 57 ·9 | 141 ·95 |
| 24 | 12 12 13 ·94 | S.2 40 9 ·6 | |

| Hour. | Right Ascension. | Declination. | Diff. D for 1 |
|---|---|---|---|
| | *WEDNESDAY* 19. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 12 12 13 ·94 | S. 2 40 9 ·6 | 141 |
| 1 | 12 13 59 ·30 | 2 54 20 ·3 | 141 |
| 2 | 12 15 44 ·65 | 3 8 30 ·0 | 141 |
| 3 | 12 17 30 ·00 | 3 22 38 ·6 | 141 |
| 4 | 12 19 15 ·36 | 3 36 46 ·1 | 141 |
| 5 | 12 21 0 ·72 | 3 50 52 ·5 | 140 |
| 6 | 12 22 46 ·09 | 4 4 57 ·7 | 140 |
| 7 | 12 24 31 ·48 | 4 19 1 ·6 | 140 |
| 8 | 12 26 16 ·89 | 4 33 4 ·3 | 140 |
| 9 | 12 28 2 ·33 | 4 47 5 ·6 | 140 |
| 10 | 12 29 47 ·80 | 5 1 5 ·7 | 139 |
| 11 | 12 31 33 ·30 | 5 15 4 ·3 | 139 |
| 12 | 12 33 18 ·84 | 5 29 1 ·5 | 139 |
| 13 | 12 35 4 ·43 | 5 42 57 ·2 | 139 |
| 14 | 12 36 50 ·07 | 5 56 51 ·4 | 138 |
| 15 | 12 38 35 ·76 | 6 10 44 ·1 | 138 |
| 16 | 12 40 21 ·51 | 6 24 35 ·2 | 138 |
| 17 | 12 42 7 ·32 | 6 38 24 ·7 | 137 |
| 18 | 12 43 53 ·21 | 6 52 12 ·5 | 137 |
| 19 | 12 45 39 ·16 | 7 5 58 ·7 | 137 |
| 20 | 12 47 25 ·19 | 7 19 43 ·1 | 137 |
| 21 | 12 49 11 ·31 | 7 33 25 ·7 | 136 |
| 22 | 12 50 57 ·51 | 7 47 6 ·5 | 136 |
| 23 | 12 52 43 ·79 | S. 8 0 45 ·4 | 136 |
| | *THURSDAY* 20. | | |
| 0 | 12 54 30 ·18 | S. 8 14 22 ·5 | 135 |
| 1 | 12 56 16 ·66 | 8 27 57 ·6 | 135 |
| 2 | 12 58 3 ·25 | 8 41 30 ·8 | 135 |
| 3 | 12 59 49 ·95 | 8 55 2 ·0 | 134 |
| 4 | 13 1 36 ·76 | 9 8 31 ·1 | 134 |
| 5 | 13 3 23 ·68 | 9 21 58 ·1 | 134 |
| 6 | 13 5 10 ·73 | 9 35 23 ·0 | 133 |
| 7 | 13 6 57 ·90 | 9 48 45 ·7 | 133 |
| 8 | 13 8 45 ·21 | 10 2 6 ·2 | 133 |
| 9 | 13 10 32 ·65 | 10 15 24 ·5 | 132 |
| 10 | 13 12 20 ·22 | 10 28 40 ·4 | 132 |
| 11 | 13 14 7 ·94 | 10 41 54 ·0 | 131 |
| 12 | 13 15 55 ·81 | 10 55 5 ·2 | 131 |
| 13 | 13 17 43 ·83 | 11 8 14 ·0 | 131 |
| 14 | 13 19 32 ·01 | 11 21 20 ·3 | 130 |
| 15 | 13 21 20 ·34 | 11 34 24 ·1 | 130 |
| 16 | 13 23 8 ·84 | 11 47 25 ·3 | 129 |
| 17 | 13 24 57 ·51 | 12 0 23 ·9 | 129 |
| 18 | 13 26 46 ·35 | 12 13 19 ·9 | 128 |
| 19 | 13 28 35 ·37 | 12 26 13 ·2 | 128 |
| 20 | 13 30 24 ·57 | 12 39 3 ·7 | 127 |
| 21 | 13 32 13 ·95 | 12 51 51 ·5 | 127 |
| 22 | 13 34 3 ·52 | 13 4 36 ·4 | 127 |
| 23 | 13 35 53 ·29 | 13 17 18 ·4 | 126 |
| 24 | 13 37 43 ·25 | S.13 29 57 ·5 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *FRIDAY* 21. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 13 37 43 ·25 | S. 13 29 57 ·5 | 126 ·02 |
| 1 | 13 39 33 ·41 | 13 42 33 ·6 | 125 ·52 |
| 2 | 13 41 23 ·77 | 13 55 6 ·7 | 125 ·00 |
| 3 | 13 43 14 ·35 | 14 7 36 ·7 | 124 ·50 |
| 4 | 13 45 5 ·13 | 14 20 3 ·7 | 123 ·95 |
| 5 | 13 46 56 ·13 | 14 32 27 ·4 | 123 ·43 |
| 6 | 13 48 47 ·35 | 14 44 48 ·0 | 122 ·87 |
| 7 | 13 50 38 ·79 | 14 57 5 ·2 | 122 ·33 |
| 8 | 13 52 30 ·46 | 15 9 19 ·2 | 121 ·77 |
| 9 | 13 54 22 ·36 | 15 21 29 ·8 | 121 ·22 |
| 10 | 13 56 14 ·50 | 15 33 37 ·1 | 120 ·62 |
| 11 | 13 58 6 ·87 | 15 45 40 ·8 | 120 ·05 |
| 12 | 13 59 59 ·49 | 15 57 41 ·1 | 119 ·45 |
| 13 | 14 1 52 ·35 | 16 9 37 ·8 | 118 ·87 |
| 14 | 14 3 45 ·46 | 16 21 31 ·0 | 118 ·23 |
| 15 | 14 5 38 ·83 | 16 33 20 ·4 | 117 ·63 |
| 16 | 14 7 32 ·44 | 16 45 6 ·2 | 117 ·00 |
| 17 | 14 9 26 ·32 | 16 56 48 ·2 | 116 ·37 |
| 18 | 14 11 20 ·46 | 17 8 26 ·4 | 115 ·72 |
| 19 | 14 13 14 ·86 | 17 20 0 ·7 | 115 ·07 |
| 20 | 14 15 9 ·54 | 17 31 31 ·1 | 114 ·42 |
| 21 | 14 17 4 ·48 | 17 42 57 ·6 | 113 ·73 |
| 22 | 14 18 59 ·70 | 17 54 20 ·0 | 113 ·07 |
| 23 | 14 20 55 ·20 | S. 18 5 38 ·4 | 112 ·37 |
| | *SATURDAY* 22. | | |
| 0 | 14 22 50 ·98 | S. 18 16 52 ·6 | 111 ·67 |
| 1 | 14 24 47 ·04 | 18 28 2 ·6 | 110 ·97 |
| 2 | 14 26 43 ·39 | 18 39 8 ·4 | 110 ·25 |
| 3 | 14 28 40 ·03 | 18 50 9 ·9 | 109 ·53 |
| 4 | 14 30 36 ·96 | 19 1 7 ·1 | 108 ·78 |
| 5 | 14 32 34 ·18 | 19 11 59 ·8 | 108 ·05 |
| 6 | 14 34 31 ·70 | 19 22 48 ·1 | 107 ·30 |
| 7 | 14 36 29 ·53 | 19 33 31 ·9 | 106 ·52 |
| 8 | 14 38 27 ·65 | 19 44 11 ·0 | 105 ·77 |
| 9 | 14 40 26 ·08 | 19 54 45 ·6 | 104 ·97 |
| 10 | 14 42 24 ·82 | 20 5 15 ·4 | 104 ·18 |
| 11 | 14 44 23 ·87 | 20 15 40 ·5 | 103 ·38 |
| 12 | 14 46 23 ·23 | 20 26 0 ·8 | 102 ·57 |
| 13 | 14 48 22 ·91 | 20 36 16 ·2 | 101 ·75 |
| 14 | 14 50 22 ·90 | 20 46 26 ·7 | 100 ·92 |
| 15 | 14 52 23 ·20 | 20 56 32 ·2 | 100 ·08 |
| 16 | 14 54 23 ·83 | 21 6 32 ·7 | 99 ·22 |
| 17 | 14 56 24 ·79 | 21 16 28 ·0 | 98 ·37 |
| 18 | 14 58 26 ·06 | 21 26 18 ·2 | 97 ·50 |
| 19 | 15 0 27 ·67 | 21 36 3 ·2 | 96 ·60 |
| 20 | 15 2 29 ·60 | 21 45 42 ·8 | 95 ·72 |
| 21 | 15 4 31 ·86 | 21 55 17 ·1 | 94 ·82 |
| 22 | 15 6 [illegible] | [illegible] | 93 ·90 |
| 23 | 15 [illegible] | [illegible] | [illegible] |
| 24 | 15 1[illegible] | [illegible] | [illegible] |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SUNDAY* 23. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 15 10 40 ·62 | S. 22 23 27 ·3 | 92 ·05 |
| 1 | 15 12 44 ·21 | 22 32 39 ·6 | 91 ·10 |
| 2 | 15 14 48 ·13 | 22 41 46 ·2 | 90 ·15 |
| 3 | 15 16 52 ·39 | 22 50 47 ·1 | 89 ·18 |
| 4 | 15 18 56 ·98 | 22 59 42 ·2 | 88 ·22 |
| 5 | 15 21 1 ·91 | 23 8 31 ·5 | 87 ·22 |
| 6 | 15 23 7 ·18 | 23 17 14 ·8 | 86 ·22 |
| 7 | 15 25 12 ·79 | 23 25 52 ·1 | 85 ·22 |
| 8 | 15 27 18 ·74 | 23 34 23 ·4 | 84 ·20 |
| 9 | 15 29 25 ·02 | 23 42 48 ·6 | 83 ·17 |
| 10 | 15 31 31 ·65 | 23 51 7 ·6 | 82 ·13 |
| 11 | 15 33 38 ·62 | 23 59 20 ·4 | 81 ·08 |
| 12 | 15 35 45 ·92 | 24 7 26 ·9 | 80 ·02 |
| 13 | 15 37 53 ·57 | 24 15 27 ·0 | 78 ·95 |
| 14 | 15 40 1 ·55 | 24 23 20 ·7 | 77 ·87 |
| 15 | 15 42 9 ·88 | 24 31 7 ·9 | 76 ·77 |
| 16 | 15 44 18 ·54 | 24 38 48 ·5 | 75 ·67 |
| 17 | 15 46 27 ·54 | 24 46 22 ·5 | 74 ·55 |
| 18 | 15 48 36 ·87 | 24 53 49 ·8 | 73 ·43 |
| 19 | 15 50 46 ·54 | 25 1 10 ·4 | 72 ·30 |
| 20 | 15 52 56 ·55 | 25 8 24 ·2 | 71 ·15 |
| 21 | 15 55 6 ·89 | 25 15 31 ·1 | 69 ·98 |
| 22 | 15 57 17 ·56 | 25 22 31 ·0 | 68 ·83 |
| 23 | 15 59 28 ·57 | S. 25 29 24 ·0 | 67 ·65 |
| | *MONDAY* 24. | | |
| 0 | 16 1 39 ·90 | S. 25 36 9 ·9 | 66 ·47 |
| 1 | 16 3 51 ·56 | 25 42 48 ·7 | 65 ·27 |
| 2 | 16 6 3 ·55 | 25 49 20 ·3 | 64 ·07 |
| 3 | 16 8 15 ·87 | 25 55 44 ·7 | 62 ·85 |
| 4 | 16 10 28 ·50 | 26 2 1 ·8 | 61 ·62 |
| 5 | 16 12 41 ·46 | 26 8 11 ·5 | 60 ·38 |
| 6 | 16 14 54 ·73 | 26 14 13 ·8 | 59 ·12 |
| 7 | 16 17 8 ·33 | 26 20 8 ·5 | 57 ·88 |
| 8 | 16 19 22 ·23 | 26 25 55 ·8 | 56 ·60 |
| 9 | 16 21 36 ·44 | 26 31 35 ·4 | 55 ·32 |
| 10 | 16 23 50 ·96 | 26 37 7 ·3 | 54 ·05 |
| 11 | 16 26 5 ·78 | 26 42 31 ·6 | 52 ·73 |
| 12 | 16 28 20 ·91 | 26 47 48 ·0 | 51 ·43 |
| 13 | 16 30 36 ·34 | 26 52 56 ·6 | 50 ·12 |
| 14 | 16 32 52 ·06 | 26 57 57 ·3 | 48 ·78 |
| 15 | 16 35 8 ·07 | 27 2 50 ·0 | 47 ·45 |
| 16 | 16 37 24 ·37 | 27 7 34 ·7 | 46 ·10 |
| 17 | 16 39 40 ·95 | 27 12 11 ·3 | 44 ·75 |
| 18 | 16 41 57 ·82 | 27 16 39 ·8 | 43 ·38 |
| 19 | 16 44 14 ·96 | 27 21 0 ·1 | 42 ·02 |
| 20 | 16 46 32 ·37 | 27 25 12 ·2 | 40 ·63 |
| 21 | 16 48 50 ·05 | 27 29 16 ·0 | 39 ·25 |
| 22 | 16 51 7 ·99 | 27 33 11 ·5 | 37 ·85 |
| 23 | 16 53 26 ·19 | 27 36 58 ·6 | 36 ·43 |
| 24 | 16 55 44 ·65 | S. 27 40 37 ·2 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 25. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 16 55 44 ·65 | S. 27 40 37 ·2 | 35 ·03 |
| 1 | 16 58 3 ·36 | 27 44 7 ·4 | 33 ·60 |
| 2 | 17 0 22 ·31 | 27 47 29 ·0 | 32 ·18 |
| 3 | 17 2 41 ·49 | 27 50 42 ·1 | 30 ·73 |
| 4 | 17 5 0 ·92 | 27 53 46 ·5 | 29 ·30 |
| 5 | 17 7 20 ·57 | 27 56 42 ·3 | 27 ·83 |
| 6 | 17 9 40 ·44 | 27 59 29 ·3 | 26 ·38 |
| 7 | 17 12 0 ·53 | 28 2 7 ·6 | 24 ·92 |
| 8 | 17 14 20 ·84 | 28 4 37 ·1 | 23 ·43 |
| 9 | 17 16 41 ·35 | 28 6 57 ·7 | 21 ·95 |
| 10 | 17 19 2 ·07 | 28 9 9 ·4 | 20 ·47 |
| 11 | 17 21 22 ·98 | 28 11 12 ·2 | 18 ·97 |
| 12 | 17 23 44 ·08 | 28 13 6 ·0 | 17 ·47 |
| 13 | 17 26 5 ·37 | 28 14 50 ·8 | 15 ·97 |
| 14 | 17 28 26 ·83 | 28 16 26 ·6 | 14 ·43 |
| 15 | 17 30 48 ·47 | 28 17 53 ·2 | 12 ·93 |
| 16 | 17 33 10 ·27 | 28 19 10 ·8 | 11 ·40 |
| 17 | 17 35 32 ·23 | 28 20 19 ·2 | 9 ·87 |
| 18 | 17 37 54 ·34 | 28 21 18 ·4 | 8 ·35 |
| 19 | 17 40 16 ·60 | 28 22 8 ·5 | 6 ·80 |
| 20 | 17 42 39 ·00 | 28 22 49 ·3 | 5 ·25 |
| 21 | 17 45 1 ·53 | 28 23 20 ·8 | 3 ·72 |
| 22 | 17 47 24 ·18 | 28 23 43 ·1 | 2 ·17 |
| 23 | 17 49 46 ·96 | S. 28 23 56 ·1 | 0 ·60 |
| | *WEDNESDAY* 26. | | |
| 0 | 17 52 9 ·85 | S. 28 23 59 ·7 | 0 ·95 |
| 1 | 17 54 32 ·85 | 28 23 54 ·0 | 2 ·52 |
| 2 | 17 56 55 ·95 | 28 23 38 ·9 | 4 ·08 |
| 3 | 17 59 19 ·13 | 28 23 14 ·4 | 5 ·65 |
| 4 | 18 1 42 ·40 | 28 22 40 ·5 | 7 ·22 |
| 5 | 18 4 5 ·75 | 28 21 57 ·2 | 8 ·80 |
| 6 | 18 6 29 ·17 | 28 21 4 ·4 | 10 ·37 |
| 7 | 18 8 52 ·65 | 28 20 2 ·2 | 11 ·93 |
| 8 | 18 11 16 ·19 | 28 18 50 ·6 | 13 ·52 |
| 9 | 18 13 39 ·77 | 28 17 29 ·5 | 15 ·10 |
| 10 | 18 16 3 ·40 | 28 15 58 ·9 | 16 ·68 |
| 11 | 18 18 27 ·06 | 28 14 18 ·8 | 18 ·25 |
| 12 | 18 20 50 ·75 | 28 12 29 ·3 | 19 ·83 |
| 13 | 18 23 14 ·46 | 28 10 30 ·3 | 21 ·43 |
| 14 | 18 25 38 ·18 | 28 8 21 ·7 | 23 ·00 |
| 15 | 18 28 1 ·90 | 28 6 3 ·7 | 24 ·58 |
| 16 | 18 30 25 ·63 | 28 3 36 ·2 | 26 ·17 |
| 17 | 18 32 49 ·35 | 28 0 59 ·2 | 27 ·75 |
| 18 | 18 35 13 ·05 | 27 58 12 ·7 | 29 ·33 |
| 19 | 18 37 36 ·74 | 27 55 16 ·7 | 30 ·92 |
| 20 | 18 40 0 ·40 | 27 52 11 ·2 | 32 ·48 |
| 21 | 18 42 24 ·02 | 27 48 56 ·3 | 34 ·05 |
| 22 | 18 44 47 ·60 | 27 45 32 ·0 | 35 ·65 |
| 23 | 18 47 11 ·14 | 27 41 58 ·1 | 37 ·20 |
| 24 | 18 49 34 ·62 | S. 27 38 14 ·9 | |

| Hour. | Right Ascension. | Declination. |
|---|---|---|
| | *THURSDAY* 27. | |
| | h m s | ° ′ ″ |
| 0 | 18 49 34 ·62 | S. 27 38 14 ·9 |
| 1 | 18 51 58 ·05 | 27 34 22 ·2 |
| 2 | 18 54 21 ·41 | 27 30 20 ·1 |
| 3 | 18 56 44 ·69 | 27 26 8 ·7 |
| 4 | 18 59 7 ·90 | 27 21 47 ·8 |
| 5 | 19 1 31 ·02 | 27 17 17 ·7 |
| 6 | 19 3 54 ·05 | 27 12 38 ·2 |
| 7 | 19 6 16 ·98 | 27 7 49 ·4 |
| 8 | 19 8 39 ·81 | 27 2 51 ·3 |
| 9 | 19 11 2 ·53 | 26 57 44 ·0 |
| 10 | 19 13 25 ·13 | 26 52 27 ·4 |
| 11 | 19 15 47 ·62 | 26 47 1 ·7 |
| 12 | 19 18 9 ·97 | 26 41 26 ·8 |
| 13 | 19 20 32 ·19 | 26 35 42 ·8 |
| 14 | 19 22 54 ·26 | 26 29 49 ·7 |
| 15 | 19 25 16 ·20 | 26 23 47 ·5 |
| 16 | 19 27 37 ·99 | 26 17 36 ·3 |
| 17 | 19 29 59 ·62 | 26 11 16 ·1 |
| 18 | 19 32 21 ·10 | 26 4 46 ·9 |
| 19 | 19 34 42 ·41 | 25 58 8 ·8 |
| 20 | 19 37 3 ·55 | 25 51 21 ·9 |
| 21 | 19 39 24 ·52 | 25 44 26 ·1 |
| 22 | 19 41 45 ·32 | 25 37 21 ·5 |
| 23 | 19 44 5 ·93 | S. 25 30 8 ·1 |
| | *FRIDAY* 28. | |
| 0 | 19 46 26 ·36 | S. 25 22 46 ·1 |
| 1 | 19 48 46 ·60 | 25 15 15 ·4 |
| 2 | 19 51 6 ·64 | 25 7 36 ·0 |
| 3 | 19 53 26 ·48 | 24 59 48 ·1 |
| 4 | 19 55 46 ·12 | 24 51 51 ·7 |
| 5 | 19 58 5 ·56 | 24 43 46 ·9 |
| 6 | 20 0 24 ·80 | 24 35 33 ·6 |
| 7 | 20 2 43 ·82 | 24 27 11 ·9 |
| 8 | 20 5 2 ·63 | 24 18 42 ·0 |
| 9 | 20 7 21 ·22 | 24 10 3 ·8 |
| 10 | 20 9 39 ·60 | 24 1 17 ·4 |
| 11 | 20 11 57 ·75 | 23 52 22 ·8 |
| 12 | 20 14 15 ·67 | 23 43 20 ·2 |
| 13 | 20 16 33 ·37 | 23 34 9 ·6 |
| 14 | 20 18 50 ·83 | 23 24 51 ·0 |
| 15 | 20 21 8 ·07 | 23 15 24 ·5 |
| 16 | 20 23 25 ·07 | 23 5 50 ·1 |
| 17 | 20 25 41 ·83 | 22 56 7 ·9 |
| 18 | 20 27 58 ·36 | 22 46 18 ·1 |
| 19 | 20 30 14 ·65 | 22 36 20 ·5 |
| 20 | 20 32 30 ·70 | 22 26 15 ·4 |
| 21 | 20 34 46 ·51 | 22 16 2 ·7 |
| 22 | 20 37 2 ·07 | 22 5 42 ·6 |
| 23 | 20 39 17 ·40 | [illegible] |
| 24 | 20 41 32 ·4[illegible] | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. | Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|---|---|---|---|
| | *SATURDAY* 29. | | | | *SUNDAY* 30. | | |
| | h m s | ° ′ ″ | ″ | | h m s | ° ′ ″ | ″ |
| 0 | 20 41 32·48 | S. 21 44 40·1 | 107·03 | 0 | 21 34 21·33 | S. 16 56 56·6 | 132·68 |
| 1 | 20 43 47·32 | 21 33 57·9 | 108·23 | 1 | 21 36 30·42 | 16 43 40·5 | 133·58 |
| 2 | 20 46 1·91 | 21 23 8·5 | 109·43 | 2 | 21 38 39·28 | 16 30 19·0 | 134·52 |
| 3 | 20 48 16·25 | 21 12 11·9 | 110·60 | 3 | 21 40 47·93 | 16 16 51·9 | 135·38 |
| 4 | 20 50 30·35 | 21 1 8·3 | 111·78 | 4 | 21 42 56·36 | 16 3 19·6 | 136·28 |
| 5 | 20 52 44·20 | 20 49 57·6 | 112·93 | 5 | 21 45 4·57 | 15 49 41·9 | 137·15 |
| 6 | 20 54 57·81 | 20 38 40·0 | 114·08 | 6 | 21 47 12·57 | 15 35 59·0 | 138·00 |
| 7 | 20 57 11·17 | 20 27 15·5 | 115·20 | 7 | 21 49 20·36 | 15 22 11·0 | 138·83 |
| 8 | 20 59 24·29 | 20 15 44·3 | 116·35 | 8 | 21 51 27·95 | 15 8 18·0 | 139·68 |
| 9 | 21 1 37·15 | 20 4 6·2 | 117·43 | 9 | 21 53 35·33 | 14 54 19·9 | 140·48 |
| 10 | 21 3 49·78 | 19 52 21·6 | 118·55 | 10 | 21 55 42·52 | 14 40 17·0 | 141·30 |
| 11 | 21 6 2·16 | 19 40 30·3 | 119·63 | 11 | 21 57 49·50 | 14 26 9·2 | 142·10 |
| 12 | 21 8 14·29 | 19 28 32·5 | 120·70 | 12 | 21 59 56·29 | 14 11 56·6 | 142·87 |
| 13 | 21 10 26·18 | 19 16 28·3 | 121·77 | 13 | 22 2 2·89 | 13 57 39·4 | 143·63 |
| 14 | 21 12 37·83 | 19 4 17·7 | 122·82 | 14 | 22 4 9·30 | 13 43 17·6 | 144·40 |
| 15 | 21 14 49·24 | 18 52 0·8 | 123·85 | 15 | 22 6 15·52 | 13 28 51·2 | 145·13 |
| 16 | 21 17 0·41 | 18 39 37·7 | 124·90 | 16 | 22 8 21·56 | 13 14 20·4 | 145·87 |
| 17 | 21 19 11·34 | 18 27 8·3 | 125·90 | 17 | 22 10 27·43 | 12 59 45·2 | 146·58 |
| 18 | 21 21 22·04 | 18 14 32·9 | 126·90 | 18 | 22 12 33·12 | 12 45 5·7 | 147·28 |
| 19 | 21 23 32·50 | 18 1 51·5 | 127·88 | 19 | 22 14 38·64 | 12 30 22·0 | 147·98 |
| 20 | 21 25 42·73 | 17 49 4·2 | 128·88 | 20 | 22 16 44·00 | 12 15 34·1 | 148·67 |
| 21 | 21 27 52·72 | 17 36 10·9 | 129·85 | 21 | 22 18 49·19 | 12 0 42·1 | 149·33 |
| 22 | 21 30 2·48 | 17 23 11·8 | 130·78 | 22 | 22 20 54·22 | 11 45 46·1 | 149·98 |
| 23 | 21 32 12·02 | 17 10 7·1 | 131·75 | 23 | 22 22 59·10 | 11 30 46·2 | 150·63 |
| 24 | 21 34 21·33 | S. 16 56 56·6 | | 24 | 22 25 3·83 | S. 11 15 42·4 | |

### PHASES OF THE MOON.

| | d h m |
|---|---|
| ☾ *Last Quarter* | 4 11 36·8 |
| ● New Moon | 11 2 42·0 |
| ☽ *First Quarter* | 18 10 1·2 |
| ○ Full Moon | 26 12 0·0 |

| | d h |
|---|---|
| ☾ Perigee | 9 2 |
| ☾ Apogee | 21 0 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P. L. of diff. | III h. | P. L. of diff. | VI h. | P. L. of diff. | IX h. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ |
| 1 | Jupiter | W. | 108 24 58 | 2694 | 110 1 46 | 2685 | 111 38 46 | 2675 | 113 16 |
| | Saturn | W. | 50 42 37 | 2717 | 52 18 54 | 2706 | 53 55 26 | 2695 | 55 32 |
| | Antares | W. | 49 30 25 | 2692 | 51 7 16 | 2682 | 52 44 20 | 2673 | 54 21 |
| | Fomalhaut | E. | 37 31 1 | 3483 | 36 10 18 | 3538 | 34 50 36 | 3602 | 33 32 |
| | α Pegasi | E. | 58 5 42 | 3056 | 56 36 39 | 3060 | 55 7 41 | 3066 | 53 38 |
| | Sun | E. | 132 56 8 | 3057 | 131 27 6 | 3045 | 129 57 49 | 3033 | 128 28 |
| 2 | Saturn | W. | 63 40 2 | 2626 | 65 18 22 | 2615 | 66 56 57 | 2603 | 68 35 |
| | Antares | W. | 62 31 21 | 2612 | 64 9 59 | 2602 | 65 48 52 | 2591 | 67 27 |
| | α Pegasi | E. | 46 17 24 | 3137 | 44 49 59 | 3158 | 43 22 59 | 3183 | 41 56 |
| | α Arietis | E. | 85 51 49 | 2640 | 84 13 48 | 2629 | 82 35 33 | 2618 | 80 57 |
| | Sun | E. | 120 57 2 | 2963 | 119 26 3 | 2951 | 117 54 49 | 2939 | 116 23 |
| 3 | Saturn | W. | 76 54 0 | 2534 | 78 34 26 | 2522 | 80 15 8 | 2511 | 81 56 |
| | Antares | W. | 75 47 19 | 2525 | 77 27 57 | 2514 | 79 8 50 | 2502 | 80 50 |
| | α Arietis | E. | 72 41 2 | 2556 | 71 1 6 | 2545 | 69 20 56 | 2534 | 67 40 |
| | Sun | E. | 108 42 3 | 2866 | 107 9 0 | 2854 | 105 35 42 | 2841 | 104 2 |
| 4 | Saturn | W. | 90 25 1 | 2441 | 92 7 37 | 2429 | 93 50 30 | 2418 | 95 33 |
| | Antares | W. | 89 19 47 | 2434 | 91 2 34 | 2422 | 92 45 38 | 2410 | 94 28 |
| | α Arietis | E. | 59 14 42 | 2471 | 57 32 48 | 2461 | 55 50 40 | 2450 | 54 8 |
| | Sun | E. | 96 10 10 | 2766 | 94 34 57 | 2753 | 92 59 28 | 2740 | 91 23 |
| 5 | Saturn | W. | 104 13 30 | 2350 | 105 58 17 | 2339 | 107 43 19 | 2328 | 109 28 |
| | α Aquilæ | W. | 56 54 52 | 3536 | 58 14 36 | 3470 | 59 35 34 | 3417 | 60 57 |
| | α Arietis | E. | 45 32 59 | 2395 | 43 49 17 | 2387 | 42 5 24 | 2380 | 40 21 |
| | Sun | E. | 83 20 37 | 2665 | 81 43 10 | 2652 | 80 5 26 | 2640 | 78 27 |
| 6 | α Aquilæ | W. | 68 0 9 | 3169 | 69 26 55 | 3138 | 70 54 19 | 3107 | 72 22 |
| | Fomalhaut | W. | 39 24 12 | 2916 | 40 56 11 | 2859 | 42 29 22 | 2808 | 44 3 |
| | α Arietis | E. | 31 39 4 | 2356 | 29 54 26 | 2357 | 28 9 50 | 2362 | 26 25 |
| | Sun | E. | 70 13 24 | 2571 | 68 33 48 | 2560 | 66 53 58 | 2549 | 65 13 |
| 7 | α Aquilæ | W. | 79 50 3 | 2971 | 81 20 52 | 2955 | 82 52 1 | 2940 | 84 23 |
| | Fomalhaut | W. | 52 8 51 | 2583 | 53 48 9 | 2556 | 55 28 5 | 2531 | 57 8 |
| | α Pegasi | W. | 32 11 11 | 3178 | 33 37 47 | 3076 | 35 6 26 | 2989 | 36 36 |
| | Sun | E. | 56 50 2 | 2492 | 55 8 38 | 2484 | 53 27 3 | 2477 | 51 45 |
| 8 | α Aquilæ | W. | 92 4 4 | 2890 | 93 36 35 | 2889 | 95 9 8 | 2889 | 96 41 |
| | Fomalhaut | W. | 65 38 12 | 2420 | 67 21 18 | 2407 | 69 4 43 | 2396 | 70 48 |
| | α Pegasi | W. | 44 30 10 | 2644 | 46 8 5 | 2607 | 47 46 50 | 2575 | 49 26 |
| | Sun | E. | 43 14 20 | 2445 | 41 31 49 | 2442 | 39 49 14 | 2440 | 38 6 |
| 13 | Sun | W. | 25 41 29 | 2747 | 27 17 7 | 2755 | 28 52 34 | 2766 | 30 27 |
| | Regulus | E. | 40 41 37 | 2357 | 38 57 0 | 2373 | 37 12 46 | 2389 | 35 28 |
| | Mars | E. | 66 50 20 | 2490 | 65 8 52 | 2506 | 63 27 47 | 2523 | 61 47 |
| | Jupiter | E. | 81 44 16 | 2366 | 79 59 53 | 2382 | 78 15 53 | 2398 | 76 32 |
| 14 | Sun | W. | 38 19 45 | 2848 | 39 53 11 | 2863 | 41 26 18 | 2879 | 42 59 |
| | Mars | E. | 53 29 38 | 2629 | 51 51 22 | 2646 | 50 13 30 | 2664 | 48 36 |
| | Jupiter | E. | 68 0 12 | 2501 | 66 19 0 | 2519 | 64 38 13 | 2536 | 62 57 |
| | Spica ♍ | E. | 80 54 56 | 2487 | 79 13 24 | 2503 | 77 32 15 | 2520 | 75 51 |
| 15 | Sun | W. | 50 37 31 | 2981 | 52 8 7 | 2998 | 53 38 22 | 3016 | 55 8 |
| | Mars | E. | 40 34 48 | 2773 | 38 59 45 | 2791 | 37 25 6 | 2809 | 35 50 |

## MEAN TIME.

### LUNAR DISTANCES.

| the Month. | Star's Name and Position. | | Midnight. | P.L. of diff. | XV h. | P.L. of diff. | XVIII h. | P.L. of diff. | XXI h. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 1 | Jupiter | W. | 114 53 26 | 2656 | 116 31 5 | 2646 | 118 8 57 | 2637 | 119 47 2 | 2627 |
| | Saturn | W. | 57 9 16 | 2671 | 58 46 35 | 2660 | 60 24 8 | 2649 | 62 1 57 | 2637 |
| | Antares | W. | 55 59 6 | 2653 | 57 36 49 | 2643 | 59 14 46 | 2633 | 60 52 56 | 2622 |
| | Fomalhaut | E. | 32 14 51 | 3762 | 30 59 9 | 3864 | 29 45 13 | 3983 | 28 33 17 | 4127 |
| | α Pegasi | E. | 52 10 7 | 3081 | 50 41 34 | 3092 | 49 13 15 | 3105 | 47 45 11 | 3119 |
| | Sun | E. | 126 58 31 | 3010 | 125 28 31 | 2998 | 123 58 16 | 2986 | 122 27 46 | 2975 |
| 2 | Saturn | W. | 70 14 55 | 2580 | 71 54 18 | 2569 | 73 33 56 | 2557 | 75 13 50 | 2546 |
| | Antares | W. | 69 7 21 | 2569 | 70 46 58 | 2559 | 72 26 50 | 2548 | 74 6 57 | 2537 |
| | α Pegasi | E. | 40 30 33 | 3244 | 39 5 16 | 3283 | 37 40 45 | 3330 | 36 17 8 | 3384 |
| | α Arietis | E. | 79 18 20 | 2598 | 77 39 22 | 2588 | 76 0 10 | 2577 | 74 20 43 | 2567 |
| | Sun | E. | 114 51 35 | 2915 | 113 19 35 | 2903 | 111 47 20 | 2891 | 110 14 49 | 2879 |
| 3 | Saturn | W. | 83 37 20 | 2487 | 85 18 51 | 2476 | 87 0 38 | 2465 | 88 42 41 | 2453 |
| | Antares | W. | 82 31 25 | 2480 | 84 13 6 | 2469 | 85 55 3 | 2457 | 87 37 17 | 2445 |
| | α Arietis | E. | 65 59 50 | 2513 | 64 18 55 | 2503 | 62 37 46 | 2492 | 60 56 21 | 2482 |
| | Sun | E. | 102 28 16 | 2816 | 100 54 9 | 2804 | 99 19 46 | 2791 | 97 45 7 | 2778 |
| 4 | Saturn | W. | 97 17 4 | 2395 | 99 0 46 | 2384 | 100 44 44 | 2372 | 102 28 59 | 2361 |
| | Antares | W. | 96 12 36 | 2387 | 97 56 30 | 2375 | 99 40 41 | 2363 | 101 25 9 | 2351 |
| | α Arietis | E. | 52 25 40 | 2431 | 50 42 50 | 2422 | 48 59 46 | 2412 | 47 16 29 | 2403 |
| | Sun | E. | 89 47 38 | 2715 | 88 11 18 | 2702 | 86 34 41 | 2689 | 84 57 47 | 2677 |
| 5 | Saturn | W. | 111 14 11 | 2307 | 113 0 0 | 2297 | 114 46 4 | 2287 | 116 32 23 | 2277 |
| | α Aquilæ | W. | 62 20 23 | 3322 | 63 44 9 | 3281 | 65 8 43 | 3241 | 66 34 4 | 3203 |
| | α Arietis | E. | 38 37 6 | 2368 | 36 52 45 | 2362 | 35 8 16 | 2358 | 33 23 41 | 2357 |
| | Sun | E. | 76 49 10 | 2616 | 75 10 37 | 2604 | 73 31 48 | 2593 | 71 52 44 | 2582 |
| 6 | α Aquilæ | W. | 73 50 54 | 3054 | 75 20 0 | 3031 | 76 49 35 | 3010 | 78 19 36 | 2989 |
| | Fomalhaut | W. | 45 38 59 | 2719 | 47 15 14 | 2681 | 48 52 20 | 2646 | 50 30 13 | 2613 |
| | α Arietis | E. | 24 41 2 | 2382 | 22 57 1 | 2401 | 21 13 27 | 2427 | 19 30 30 | 2464 |
| | Sun | E. | 63 33 34 | 2529 | 61 53 1 | 2519 | 60 12 14 | 2509 | 58 31 14 | 2501 |
| 7 | α Aquilæ | W. | 85 55 12 | 2916 | 87 27 10 | 2908 | 88 59 19 | 2900 | 90 31 38 | 2894 |
| | Fomalhaut | W. | 58 49 36 | 2487 | 60 31 7 | 2468 | 62 13 5 | 2451 | 63 55 27 | 2435 |
| | α Pegasi | W. | 38 8 57 | 2845 | 39 42 27 | 2786 | 41 17 14 | 2733 | 42 53 10 | 2685 |
| | Sun | E. | 50 3 23 | 2463 | 48 21 18 | 2458 | 46 39 6 | 2453 | 44 56 46 | 2448 |
| 8 | α Aquilæ | W. | 98 14 12 | 2894 | 99 46 38 | 2900 | 101 18 57 | 2909 | 102 51 5 | 2919 |
| | Fomalhaut | W. | 72 32 20 | 2375 | 74 16 30 | 2368 | 76 0 51 | 2361 | 77 45 22 | 2355 |
| | α Pegasi | W. | 51 6 30 | 2519 | 52 47 17 | 2496 | 54 28 36 | 2475 | 56 10 24 | 2457 |
| | Sun | E. | 36 23 57 | 2439 | 34 41 18 | 2440 | 32 58 41 | 2443 | 31 16 8 | 2447 |
| 13 | Sun | W. | 32 2 45 | 2789 | 33 37 27 | 2802 | 35 11 52 | 2817 | 36 45 58 | 2832 |
| | Regulus | E. | 33 45 28 | 2422 | 32 2 25 | 2440 | 30 19 47 | 2458 | 28 37 34 | 2475 |
| | Mars | E. | 60 6 48 | 2557 | 58 26 54 | 2575 | 56 47 24 | 2593 | 55 8 19 | 2610 |
| | Jupiter | E. | 74 49 3 | 2432 | 73 6 14 | 2449 | 71 23 49 | 2466 | 69 41 48 | 2484 |
| 14 | Sun | W. | 44 31 28 | 2913 | 46 3 31 | 2929 | 47 35 13 | 2946 | 49 6 33 | 2964 |
| | Mars | E. | 46 58 59 | 2701 | 45 22 20 | 2719 | 43 46 5 | 2737 | 42 10 14 | 2756 |
| | Jupiter | E. | 61 17 52 | 2572 | 59 38 18 | 2590 | 57 59 9 | 2607 | 56 20 24 | 2625 |
| | Spica ♍ | E. | 74 11 9 | 2556 | 72 31 13 | 2572 | 70 51 40 | 2590 | 69 12 31 | 2607 |
| 15 | Sun | W. | 56 37 47 | 3050 | 58 6 58 | 3067 | 59 35 48 | 3084 | 61 4 17 | 3101 |
| | Mars | E. | 34 16 57 | 2845 | 32 43 27 | 2863 | 31 10 20 | 2880 | 29 37 35 | 2896 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P. L. of diff. | III h. | P. L. of diff. | VI h. | P. L. of diff. | IX h. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ |
| 15 | Jupiter | E. | 54 42 3 | 2643 | 53 4 6 | 2661 | 51 26 33 | 2678 | 49 49 |
| | Spica ♍ | E. | 67 33 45 | 2624 | 65 55 23 | 2641 | 64 17 24 | 2658 | 62 39 |
| | Saturn | E. | 111 26 26 | 2636 | 109 48 20 | 2653 | 108 10 37 | 2669 | 106 33 |
| 16 | Sun | W. | 62 32 26 | 3117 | 64 0 15 | 3134 | 65 27 44 | 3149 | 66 54 |
| | Venus | W. | 21 8 36 | 3168 | 22 35 23 | 3184 | 24 1 51 | 3200 | 25 28 |
| | Mars | E. | 28 5 11 | 2913 | 26 33 9 | 2931 | 25 1 29 | 2947 | 23 30 |
| | Jupiter | E. | 41 49 22 | 2780 | 40 14 28 | 2798 | 38 39 57 | 2814 | 37 5 |
| | Spica ♍ | E. | 54 37 22 | 2756 | 53 1 56 | 2772 | 51 26 51 | 2787 | 49 52 |
| | Saturn | E. | 98 31 49 | 2764 | 96 56 34 | 2779 | 95 21 39 | 2795 | 93 47 |
| 17 | Sun | W. | 74 6 8 | 3240 | 75 31 30 | 3253 | 76 56 37 | 3267 | 78 21 |
| | Venus | W. | 32 34 14 | 3289 | 33 58 38 | 3304 | 35 22 45 | 3317 | 36 46 |
| | Jupiter | E. | 29 20 12 | 2911 | 27 48 7 | 2926 | 26 16 21 | 2943 | 24 44 |
| | Spica ♍ | E. | 42 3 7 | 2873 | 40 30 13 | 2885 | 38 57 35 | 2898 | 37 25 |
| | Saturn | E. | 85 58 50 | 2880 | 84 26 5 | 2892 | 82 53 36 | 2905 | 81 21 |
| | Antares | E. | 87 57 25 | 2872 | 86 24 30 | 2885 | 84 51 52 | 2898 | 83 19 |
| 18 | Sun | W. | 85 22 2 | 3339 | 86 45 29 | 3348 | 88 8 45 | 3359 | 89 31 |
| | Venus | W. | 43 42 23 | 3388 | 45 4 53 | 3399 | 46 27 11 | 3409 | 47 49 |
| | Regulus | W. | 24 16 54 | 2972 | 25 47 42 | 2981 | 27 18 19 | 2989 | 28 48 |
| | Spica ♍ | E. | 29 47 9 | 2966 | 28 16 13 | 2975 | 26 45 29 | 2984 | 25 14 |
| | Saturn | E. | 73 44 8 | 2974 | 72 13 23 | 2984 | 70 42 50 | 2994 | 69 12 |
| | Antares | E. | 75 41 20 | 2964 | 74 10 22 | 2974 | 72 39 37 | 2984 | 71 9 |
| 19 | Sun | W. | 96 24 35 | 3409 | 97 46 41 | 3415 | 99 8 41 | 3422 | 100 30 |
| | Venus | W. | 54 37 21 | 3457 | 55 58 33 | 3464 | 57 19 37 | 3471 | 58 40 |
| | Regulus | W. | 36 18 31 | 3033 | 37 48 3 | 3039 | 39 17 28 | 3044 | 40 46 |
| | Saturn | E. | 61 43 38 | 3045 | 60 14 21 | 3052 | 58 45 13 | 3060 | 57 16 |
| | Antares | E. | 63 38 48 | 3029 | 62 9 11 | 3035 | 60 39 42 | 3041 | 59 10 |
| 20 | Sun | W. | 107 18 30 | 3447 | 108 39 53 | 3451 | 110 1 12 | 3454 | 111 22 |
| | Venus | W. | 65 24 1 | 3495 | 66 44 31 | 3498 | 68 4 58 | 3500 | 69 25 |
| | Regulus | W. | 48 11 59 | 3067 | 49 40 49 | 3069 | 51 9 37 | 3071 | 52 38 |
| | Mars | W. | 18 56 9 | 3243 | 20 21 27 | 3245 | 21 46 43 | 3246 | 23 11 |
| | Saturn | E. | 49 53 11 | 3094 | 48 24 54 | 3100 | 46 56 44 | 3104 | 45 28 |
| | Antares | E. | 51 44 51 | 3065 | 50 15 58 | 3066 | 48 47 7 | 3069 | 47 18 |
| 21 | Sun | W. | 118 8 30 | 3458 | 119 29 41 | 3457 | 120 50 53 | 3455 | 122 12 |
| | Venus | W. | 76 7 14 | 3501 | 77 27 37 | 3499 | 78 48 2 | 3498 | 80 8 |
| | Regulus | W. | 60 1 57 | 3073 | 61 30 40 | 3071 | 62 59 25 | 3069 | 64 28 |
| | Mars | W. | 30 17 59 | 3248 | 31 43 12 | 3246 | 33 8 27 | 3245 | 34 33 |
| | Jupiter | W. | 18 55 40 | 3142 | 20 22 59 | 3134 | 21 50 28 | 3126 | 23 18 |
| | Saturn | E. | 38 9 35 | 3131 | 36 42 3 | 3136 | 35 14 37 | 3141 | 33 47 |
| | Antares | E. | 39 54 34 | 3071 | 38 25 49 | 3069 | 36 57 2 | 3068 | 35 28 |
| | α Aquilæ | E. | 93 13 42 | 3842 | 91 59 23 | 3841 | 90 45 3 | 3838 | 89 30 |
| 22 | Sun | W. | 128 58 46 | 3442 | 130 20 15 | 3438 | 131 41 49 | 3435 | 133 3 |
| | Venus | W. | 86 51 31 | 3477 | 88 12 21 | 3472 | 89 33 16 | 3468 | 90 54 |
| | Regulus | W. | 71 52 53 | 3052 | 73 22 1 | 3048 | 74 51 14 | 3043 | 76 20 |
| | Mars | W. | 41 40 50 | 3227 | 43 6 27 | 3223 | 44 32 9 | 3219 | 45 57 |
| | Jupiter | W. | 30 38 4 | 3091 | 32 6 25 | 3086 | 33 34 52 | 3079 | 35 3 |
| | Antares | E. | 28 3 25 | 3051 | 26 34 16 | 3047 | 25 5 1 | 3043 | 23 35 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Midnight. | P. L. of diff. | XV h. | P. L. of diff. | XVIII h. | P. L. of diff. | XXI h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 15 | Jupiter | E. | 48 12 37 | 2713 | 46 36 14 | 2730 | 45 0 14 | 2747 | 43 24 37 | 2764 |
| | Spica ♍ | E. | 61 2 35 | 2692 | 59 25 44 | 2708 | 57 49 15 | 2725 | 56 13 8 | 2741 |
| | Saturn | E. | 104 56 16 | 2701 | 103 19 38 | 2717 | 101 43 21 | 2733 | 100 7 25 | 2748 |
| 16 | Sun | W. | 68 21 45 | 3181 | 69 48 17 | 3195 | 71 14 32 | 3211 | 72 40 28 | 3225 |
| | Venus | W. | 26 53 50 | 3231 | 28 19 22 | 3246 | 29 44 37 | 3261 | 31 9 34 | 3276 |
| | Mars | E. | 21 59 9 | 2979 | 20 28 30 | 2995 | 18 58 11 | 3011 | 17 28 12 | 3026 |
| | Jupiter | E. | 35 31 59 | 2846 | 33 58 31 | 2863 | 32 25 24 | 2879 | 30 52 38 | 2894 |
| | Spica ♍ | E. | 48 17 41 | 2817 | 46 43 35 | 2832 | 45 9 48 | 2845 | 43 36 19 | 2859 |
| | Saturn | E. | 92 12 48 | 2824 | 90 38 51 | 2838 | 89 5 13 | 2852 | 87 31 53 | 2866 |
| 17 | Sun | W. | 79 46 3 | 3292 | 81 10 24 | 3305 | 82 34 30 | 3316 | 83 58 23 | 3328 |
| | Venus | W. | 38 10 15 | 3342 | 39 33 38 | 3355 | 40 56 46 | 3366 | 42 19 41 | 3378 |
| | Jupiter | E. | 23 13 52 | 2976 | 21 43 9 | 2993 | 20 12 48 | 3011 | 18 42 50 | 3032 |
| | Spica ♍ | E. | 35 53 8 | 2922 | 34 21 17 | 2933 | 32 49 40 | 2945 | 31 18 18 | 2955 |
| | Saturn | E. | 79 49 27 | 2930 | 78 17 46 | 2941 | 76 46 19 | 2952 | 75 15 6 | 2964 |
| | Antares | E. | 81 47 23 | 2921 | 80 15 31 | 2933 | 78 43 54 | 2943 | 77 12 30 | 2954 |
| 18 | Sun | W. | 90 54 41 | 3377 | 92 17 24 | 3386 | 93 39 56 | 3394 | 95 2 20 | 3401 |
| | Venus | W. | 49 11 13 | 3427 | 50 32 59 | 3436 | 51 54 35 | 3444 | 53 16 2 | 3451 |
| | Regulus | W. | 30 19 0 | 3006 | 31 49 6 | 3013 | 33 19 3 | 3020 | 34 48 51 | 3026 |
| | Spica ♍ | E. | 23 44 36 | 3002 | 22 14 25 | 3010 | 20 44 25 | 3018 | 19 14 34 | 3025 |
| | Saturn | E. | 67 42 22 | 3013 | 66 12 25 | 3022 | 64 42 39 | 3031 | 63 13 4 | 3038 |
| | Antares | E. | 69 38 41 | 3000 | 68 8 28 | 3009 | 66 38 26 | 3016 | 65 8 33 | 3022 |
| 19 | Sun | W. | 101 52 19 | 3432 | 103 13 59 | 3437 | 104 35 34 | 3441 | 105 57 4 | 3445 |
| | Venus | W. | 60 1 25 | 3480 | 61 22 11 | 3485 | 62 42 52 | 3489 | 64 3 29 | 3493 |
| | Regulus | W. | 42 15 59 | 3053 | 43 45 6 | 3057 | 45 14 8 | 3061 | 46 43 5 | 3064 |
| | Saturn | E. | 55 47 23 | 3072 | 54 18 39 | 3078 | 52 50 3 | 3084 | 51 21 34 | 3089 |
| | Antares | E. | 57 41 3 | 3051 | 56 11 53 | 3055 | 54 42 48 | 3058 | 53 13 47 | 3062 |
| 20 | Sun | W. | 112 43 43 | 3456 | 114 4 56 | 3458 | 115 26 7 | 3457 | 116 47 19 | 3458 |
| | Venus | W. | 70 45 46 | 3502 | 72 6 8 | 3502 | 73 26 30 | 3502 | 74 46 52 | 3502 |
| | Regulus | W. | 54 7 6 | 3073 | 55 35 49 | 3073 | 57 4 32 | 3073 | 58 33 14 | 3073 |
| | Mars | W. | 24 37 11 | 3248 | 26 2 23 | 3248 | 27 27 35 | 3248 | 28 52 47 | 3248 |
| | Saturn | E. | 44 0 40 | 3113 | 42 32 46 | 3117 | 41 4 57 | 3121 | 39 37 13 | 3126 |
| | Antares | E. | 45 49 33 | 3071 | 44 20 48 | 3071 | 42 52 3 | 3072 | 41 23 19 | 3071 |
| 21 | Sun | W. | 123 33 22 | 3453 | 124 54 39 | 3451 | 126 15 58 | 3447 | 127 37 21 | 3446 |
| | Venus | W. | 81 28 58 | 3492 | 82 49 31 | 3489 | 84 10 7 | 3486 | 85 30 47 | 3482 |
| | Regulus | W. | 65 57 1 | 3065 | 67 25 53 | 3062 | 68 54 49 | 3059 | 70 23 49 | 3056 |
| | Mars | W. | 35 59 2 | 3240 | 37 24 24 | 3237 | 38 49 49 | 3235 | 40 15 17 | 3231 |
| | Jupiter | W. | 24 45 51 | 3114 | 26 13 44 | 3108 | 27 41 44 | 3103 | 29 9 50 | 3096 |
| | Saturn | E. | 32 20 4 | 3154 | 30 53 0 | 3162 | 29 26 5 | 3170 | 27 59 20 | 3180 |
| | Antares | E. | 33 59 22 | 3064 | 32 30 28 | 3061 | 31 1 31 | 3058 | 29 32 30 | 3055 |
| | α Aquilæ | E. | 88 16 15 | 3835 | 87 1 49 | 3834 | 85 47 22 | 3834 | 84 32 55 | 3835 |
| 22 | Sun | W. | 134 25 8 | 3427 | 135 46 54 | 3422 | 137 8 46 | 3418 | 138 30 42 | 3413 |
| | Venus | W. | 92 15 22 | 3457 | 93 36 34 | 3450 | 94 57 54 | 3444 | 96 19 21 | 3437 |
| | Regulus | W. | 77 49 58 | 3033 | 79 19 30 | 3028 | 80 49 8 | 3022 | 82 18 54 | 3016 |
| | Mars | W. | 47 23 49 | 3208 | 48 49 49 | 3203 | 50 15 55 | 3197 | 51 42 8 | 3190 |
| | Jupiter | W. | 36 32 10 | 3067 | 38 1 0 | 3060 | 39 29 58 | 3054 | 40 59 4 | 3048 |
| | Antares | E. | 22 6 15 | 3033 | 20 36 43 | 3027 | 19 7 4 | 3022 | 17 37 18 | 3016 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III h. | P.L. of diff. | VI h. | P.L. of diff. | IX h. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ |
| 22 | α Aquilæ | E. | 83 18 29 | 3835 | 82 4 3 | 3837 | 80 49 39 | 3839 | 79 35 17 |
| 23 | Venus | W. | 97 40 56 | 3430 | 99 2 39 | 3423 | 100 24 30 | 3415 | 101 46 30 |
| | Mars | W. | 53 8 29 | 3184 | 54 34 57 | 3178 | 56 1 33 | 3170 | 57 28 17 |
| | Jupiter | W. | 42 28 18 | 3040 | 43 57 41 | 3033 | 45 27 13 | 3026 | 46 56 54 |
| | Spica ♍ | W. | 29 47 43 | 3009 | 31 17 45 | 3003 | 32 47 54 | 2996 | 34 18 1[illegible] |
| | α Aquilæ | E. | 73 24 26 | 3868 | 72 10 34 | 3875 | 70 56 49 | 3885 | 69 43 1[illegible] |
| | Fomalhaut | E. | 97 54 43 | 3269 | 96 29 55 | 3261 | 95 4 58 | 3253 | 93 39 5[illegible] |
| 24 | Venus | W. | 108 38 49 | 3364 | 110 1 47 | 3354 | 111 24 56 | 3344 | 112 48 1[illegible] |
| | Mars | W. | 64 44 15 | 3124 | 66 11 55 | 3115 | 67 39 46 | 3107 | 69 7 4[illegible] |
| | Jupiter | W. | 54 27 43 | 2978 | 55 58 24 | 2970 | 57 29 15 | 2961 | 59 0 1[illegible] |
| | Spica ♍ | W. | 41 52 2 | 2950 | 43 23 17 | 2942 | 44 54 43 | 2933 | 46 26 2[illegible] |
| | α Aquilæ | E. | 63 38 26 | 3970 | 62 26 17 | 3991 | 61 14 28 | 4014 | 60 3 [illegible] |
| | Fomalhaut | E. | 86 32 4 | 3208 | 85 6 4 | 3200 | 83 39 55 | 3194 | 82 13 3[illegible] |
| 25 | Mars | W. | 76 30 38 | 3052 | 77 59 46 | 3043 | 79 29 6 | 3033 | 80 58 3[illegible] |
| | Jupiter | W. | 66 38 16 | 2906 | 68 10 27 | 2897 | 69 42 50 | 2887 | 71 15 2[illegible] |
| | Spica ♍ | W. | 54 7 13 | 2880 | 55 39 58 | 2870 | 57 12 55 | 2860 | 58 46 [illegible] |
| | Fomalhaut | E. | 75 0 23 | 3158 | 73 33 23 | 3153 | 72 6 18 | 3149 | 70 39 [illegible] |
| | α Pegasi | E. | 96 49 47 | 3129 | 95 22 12 | 3119 | 93 54 25 | 3109 | 92 26 2[illegible] |
| 26 | Mars | W. | 88 29 19 | 2974 | 90 0 4 | 2964 | 91 31 2 | 2954 | 93 2 1[illegible] |
| | Jupiter | W. | 79 1 24 | 2830 | 80 35 13 | 2820 | 82 9 15 | 2811 | 83 43 2[illegible] |
| | Spica ♍ | W. | 66 34 57 | 2803 | 68 9 21 | 2793 | 69 43 58 | 2783 | 71 18 48 |
| | Saturn | W. | 24 9 37 | 2960 | 25 40 40 | 2931 | 27 12 19 | 2905 | 28 44 31 |
| | Antares | W. | 20 40 31 | 2804 | 22 14 54 | 2793 | 23 49 31 | 2784 | 25 24 20 |
| | Fomalhaut | E. | 63 22 21 | 3134 | 61 54 53 | 3135 | 60 27 26 | 3137 | 59 0 1 |
| | α Pegasi | E. | 85 3 28 | 3052 | 83 34 19 | 3043 | 82 5 0 | 3036 | 80 35 32 |
| 27 | Mars | W. | 100 41 8 | 2895 | 102 13 33 | 2886 | 103 46 10 | 2876 | 105 19 0 |
| | Jupiter | W. | 91 37 48 | 2753 | 93 13 17 | 2744 | 94 48 59 | 2734 | 96 24 54 |
| | Spica ♍ | W. | 79 16 5 | 2726 | 80 52 10 | 2716 | 82 28 29 | 2707 | 84 5 0 |
| | Saturn | W. | 36 32 14 | 2790 | 38 6 55 | 2775 | 39 41 56 | 2760 | 41 17 17 |
| | Antares | W. | 33 21 37 | 2726 | 34 57 42 | 2716 | 36 34 1 | 2707 | 38 10 32 |
| | Fomalhaut | E. | 51 44 9 | 3171 | 50 17 25 | 3183 | 48 50 55 | 3197 | 47 24 42 |
| | α Pegasi | E. | 73 6 5 | 2998 | 71 35 50 | 2993 | 70 5 29 | 2989 | 68 35 3 |
| 28 | Jupiter | W. | 104 27 32 | 2679 | 106 4 40 | 2670 | 107 42 0 | 2661 | 109 19 32 |
| | Saturn | W. | 49 18 23 | 2684 | 50 55 25 | 2672 | 52 32 43 | 2661 | 54 10 15 |
| | Antares | W. | 46 16 17 | 2650 | 47 54 4 | 2641 | 49 32 3 | 2632 | 51 10 14 |
| | Fomalhaut | E. | 40 19 52 | 3351 | 38 56 40 | 3393 | 37 34 16 | 3443 | 36 12 48 |
| | α Pegasi | E. | 61 2 14 | 2983 | 59 31 40 | 2985 | 58 1 8 | 2988 | 56 30 40 |
| 29 | Saturn | W. | 62 21 30 | 2599 | 64 0 26 | 2590 | 65 39 35 | 2581 | 67 18 56 |
| | Antares | W. | 59 24 10 | 2580 | 61 3 33 | 2571 | 62 43 8 | 2562 | 64 22 55 |
| | α Pegasi | E. | 49 0 30 | 3042 | 47 31 9 | 3059 | 46 2 9 | 3078 | 44 33 33 |
| | α Arietis | E. | 88 56 46 | 2606 | 87 17 59 | 2597 | 85 38 59 | 2589 | 83 59 49 |
| 30 | Saturn | W. | 75 38 49 | 2528 | 77 19 23 | 2520 | 79 0 9 | 2512 | 80 41 6 |
| | Antares | W. | 72 44 38 | 2514 | 74 25 32 | 2505 | 76 6 38 | 2497 | 77 47 55 |
| | α Pegasi | E. | 37 19 17 | 3288 | 35 54 52 | 3345 | 34 31 33 | 3414 | 33 9 33 |
| | α Arietis | E. | 75 41 9 | 2541 | 74 0 53 | 2534 | 72 20 27 | 2526 | 70 39 50 |
| | Sun | E. | 137 29 31 | 2866 | 135 56 29 | 2856 | 134 23 14 | 2845 | 132 49 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Midnight. | P.L. of diff. | XV h. | P.L. of diff. | XVIII h. | P.L. of diff. | XXI h. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 22 | α Aquilæ | E. | 78 20 58 | 3846 | 77 6 43 | 3850 | 75 52 32 | 3855 | 74 38 26 | 3860 |
| 23 | Venus | W. | 103 8 38 | 3399 | 104 30 56 | 3390 | 105 53 24 | 3381 | 107 16 2 | 3373 |
| | Mars | W. | 58 55 10 | 3156 | 60 22 12 | 3148 | 61 49 23 | 3140 | 63 16 44 | 3132 |
| | Jupiter | W. | 48 26 44 | 3010 | 49 56 44 | 3002 | 51 26 54 | 2995 | 52 57 13 | 2986 |
| | Spica ♍ | W. | 35 48 39 | 2981 | 37 19 15 | 2974 | 38 50 1 | 2966 | 40 20 56 | 2958 |
| | α Aquilæ | E. | 68 29 50 | 3907 | 67 16 37 | 3920 | 66 3 38 | 3935 | 64 50 54 | 3951 |
| | Fomalhaut | E. | 92 14 37 | 3237 | 90 49 12 | 3230 | 89 23 38 | 3222 | 87 57 55 | 3215 |
| 24 | Venus | W. | 114 11 46 | 3326 | 115 35 28 | 3315 | 116 59 22 | 3306 | 118 23 27 | 3296 |
| | Mars | W. | 70 35 59 | 3089 | 72 4 22 | 3080 | 73 32 56 | 3071 | 75 1 41 | 3061 |
| | Jupiter | W. | 60 31 30 | 2943 | 62 2 54 | 2934 | 63 34 30 | 2925 | 65 6 17 | 2916 |
| | Spica ♍ | W. | 47 58 8 | 2916 | 49 30 7 | 2906 | 51 2 18 | 2898 | 52 34 39 | 2888 |
| | α Aquilæ | E. | 58 52 1 | 4067 | 57 41 27 | 4099 | 56 31 24 | 4133 | 55 21 54 | 4171 |
| | Fomalhaut | E. | 80 47 14 | 3181 | 79 20 42 | 3174 | 77 54 2 | 3169 | 76 27 16 | 3163 |
| 25 | Mars | W. | 82 28 21 | 3014 | 83 58 17 | 3003 | 85 28 26 | 2994 | 86 58 46 | 2984 |
| | Jupiter | W. | 72 48 12 | 2869 | 74 21 11 | 2859 | 75 54 23 | 2849 | 77 27 47 | 2839 |
| | Spica ♍ | W. | 60 19 26 | 2842 | 61 53 0 | 2832 | 63 26 47 | 2822 | 65 0 46 | 2813 |
| | Fomalhaut | E. | 69 11 53 | 3142 | 67 44 34 | 3139 | 66 17 12 | 3137 | 64 49 47 | 3136 |
| | α Pegasi | E. | 90 58 14 | 3087 | 89 29 49 | 3078 | 88 1 13 | 3069 | 86 32 26 | 3061 |
| 26 | Mars | W. | 94 33 34 | 2935 | 96 5 9 | 2925 | 97 36 56 | 2915 | 99 8 56 | 2905 |
| | Jupiter | W. | 85 17 56 | 2791 | 86 52 35 | 2782 | 88 27 26 | 2772 | 90 2 31 | 2763 |
| | Spica ♍ | W. | 72 53 50 | 2764 | 74 29 5 | 2755 | 76 4 32 | 2745 | 77 40 12 | 2735 |
| | Saturn | W. | 30 17 13 | 2861 | 31 50 22 | 2841 | 33 23 56 | 2823 | 34 57 54 | 2806 |
| | Antares | W. | 26 59 22 | 2764 | 28 34 37 | 2755 | 30 10 4 | 2745 | 31 45 44 | 2735 |
| | Fomalhaut | E. | 57 32 39 | 3142 | 56 5 20 | 3148 | 54 38 8 | 3154 | 53 11 4 | 3162 |
| | α Pegasi | E. | 79 5 55 | 3022 | 77 36 9 | 3015 | 76 6 15 | 3009 | 74 36 13 | 3004 |
| 27 | Mars | W. | 106 52 3 | 2857 | 108 25 17 | 2847 | 109 58 44 | 2838 | 111 32 23 | 2828 |
| | Jupiter | W. | 98 1 1 | 2716 | 99 37 20 | 2706 | 101 13 52 | 2697 | 102 50 36 | 2688 |
| | Spica ♍ | W. | 85 41 44 | 2687 | 87 18 41 | 2679 | 88 55 49 | 2669 | 90 33 11 | 2660 |
| | Saturn | W. | 42 52 56 | 2732 | 44 28 53 | 2719 | 46 5 7 | 2707 | 47 41 37 | 2696 |
| | Antares | W. | 39 47 16 | 2687 | 41 24 13 | 2678 | 43 1 22 | 2669 | 44 38 43 | 2660 |
| | Fomalhaut | E. | 45 58 49 | 3234 | 44 33 20 | 3256 | 43 8 17 | 3283 | 41 43 46 | 3315 |
| | α Pegasi | E. | 67 4 34 | 2984 | 65 34 1 | 2982 | 64 3 26 | 2981 | 62 32 50 | 2981 |
| 28 | Jupiter | W. | 110 57 15 | 2643 | 112 35 11 | 2635 | 114 13 18 | 2627 | 115 51 36 | 2618 |
| | Saturn | W. | 55 48 2 | 2640 | 57 26 3 | 2629 | 59 4 18 | 2619 | 60 42 47 | 2609 |
| | Antares | W. | 52 48 37 | 2615 | 54 27 12 | 2605 | 56 6 0 | 2597 | 57 44 59 | 2588 |
| | Fomalhaut | E. | 34 52 24 | 3567 | 33 33 14 | 3646 | 32 15 29 | 3738 | 30 59 22 | 3846 |
| | α Pegasi | E. | 55 0 18 | 2999 | 53 30 4 | 3007 | 52 0 0 | 3016 | 50 30 7 | 3029 |
| 29 | Saturn | W. | 68 58 30 | 2563 | 70 38 16 | 2553 | 72 18 15 | 2545 | 73 58 26 | 2536 |
| | Antares | W. | 66 2 53 | 2546 | 67 43 2 | 2538 | 69 23 23 | 2530 | 71 3 55 | 2522 |
| | α Pegasi | E. | 43 5 26 | 3128 | 41 37 51 | 3159 | 40 10 53 | 3197 | 38 44 40 | 3239 |
| | α Arietis | E. | 82 20 27 | 2572 | 80 40 54 | 2564 | 79 1 10 | 2556 | 77 21 15 | 2548 |
| 30 | Saturn | W. | 82 22 14 | 2495 | 84 3 34 | 2488 | 85 45 4 | 2480 | 87 26 45 | 2472 |
| | Antares | W. | 79 29 23 | 2482 | 81 11 1 | 2475 | 82 52 50 | 2467 | 84 34 50 | 2460 |
| | α Pegasi | E. | 31 49 2 | 3588 | 30 30 14 | 3698 | 29 13 25 | 3829 | 27 58 53 | 3986 |
| | α Arietis | E. | 68 59 3 | 2512 | 67 18 7 | 2505 | 65 37 1 | 2498 | 63 55 45 | 2492 |
| | | E. | 131 16 4 | 2826 | 129 42 10 | 2817 | 128 8 4 | 2808 | 126 33 46 | 2798 |

## CONFIGURATIONS OF THE SATELLITES OF JUPITER,

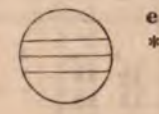
At 10h, Mean Time.

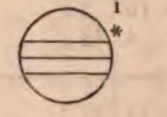
| Day of the Month. | West. | East. |
|---|---|---|
| 1 | 2· ○ | 1· ·3 4· |
| 2 | ·1 ·2○ | 3· 4· |
| 3 | ○ 1· | 3· 2· 4· |
| 4 | 3· 2· ○ | 4· ·1● |
| 5 | 3· ·2 1· ○ | 4· |
| 6 | ·3 4· ○ | ·1·2 |
| 7 | 4· 1· ·3○ | 2· |
| 8 | 4· 2· ○ | 1· ·3 |
| 9 | 4· ·1 ·2 ○ | 3· |
| 10 | ·4 ○ | 1· 3· ·2 |
| 11 | ·4 3· ·1○ | 2·○ |
| 12 | ·43· ·2 ○ | 1·○ |
| 13 | ·3 ·4 ○ | ·2 ·1 |
| 14 | 1··3 ○ | ·4 2· |
| 15 | 2· ○ | ·1 ·3 ·4 |
| 16 | ·1 ·2 ○ | 3· ·4 |
| 17 | ○ | 1· ·2 3· ·4 |
| 18 | ·1 3·○2· | 4· |
| 19 | 3· .2 ○ | 4· ○ 1· |
| 20 | ·3 ○ | 4· ●·½ |
| 21 | ·3 1· ○ | 2· 4· |
| 22 | 2· 4· | ·1 ·3 |
| 23 | 4· ·2 ·1 ○ | ·3 |
| 24 | 4· ○ | 1· ·2 3· |
| 25 | 4· ·1 3○· 2· | |
| 26 | .4 3· .2 ○ 1· | |
| 27 | ·4 ·3 ○ | ·1 ●·2 |
| 28 | ·4 ·3 1· ○ | 2· |
| 29 | ·4 2· ○ | ·3 ·1 |
| 30 | ·2 1· ·4 ○ | ·3 |

This Table represents, at 10h after *Mean Noon* of each day of the month, the relative positions of the images of Jupiter and his Satellites, as they would appear (disregarding their latitudes) in an inverting telescope. Jupiter is indicated by the white circles (○) in the centre of the page; the Satellites by points. The numerals 1, 2, 3, and 4, annexed to the points, serve to distinguish the Satellites from each other; and their positions are such as to indicate the directions of the Satellites' motions, which are in all cases to be considered as *towards the numerals*. When a Satellite is at its greatest elongation, the point is placed above or below the centre of the numeral. A white circle (○) at the left or right hand of the page, denotes that the Satellite placed by the side of it is *on* the disc of Jupiter, and a black circle (●) that it is either *behind* the disc, or in the shadow, of Jupiter.

## ECLIPSES OF THE SATELLITES OF JUPITER.

| SATELLITE. | Day of the Month. | Mean Time. | Sidereal Time. | PHASE as seen in an inverting Telescope. |
|---|---|---|---|---|
| | | h m s | h m s | |
| I. | 2 | 17 53 8·2 | 22 37 9·6 | Em. |
| | 4* | 12 21 46·7 | 17 12 46·8 | Em. |
| | 6 | 6 50 23·5 | 11 48 22·2 | Em. |
| | 8 | 1 19 2·2 | 6 23 59·7 | Em. |
| | 9 | 19 47 38·7 | 0 59 34·8 | Em. |
| | 11 | 14 16 18·1 | 19 35 12·8 | Em. |
| | 13 | 8 44 55·2 | 14 10 48·7 | Em. |
| | 15 | 3 13 33·8 | 8 46 25·9 | Em. |
| | 16 | 21 42 11·6 | 3 22 2·4 | Em. |
| | 18 | 16 10 51·1 | 21 57 40·6 | Em. |
| | 20* | 10 39 28·7 | 16 33 16·9 | Em. |
| | 22 | 5 8 8·0 | 11 8 54·9 | Em. |
| | 23 | 23 36 45·6 | 5 44 31·2 | Em. |
| | 25 | 18 5 24·9 | 0 20 9·1 | Em. |
| | 27 | 12 34 3·0 | 18 55 45·9 | Em. |
| | 29 | 7 2 42·5 | 13 31 24·1 | Em. |
| II. | 2 | 15 31 40·4 | 20 15 18·5 | Em. |
| | 6 | 4 50 47·0 | 9 48 26·1 | Em. |
| | 9 | 18 8 47·9 | 23 20 27·7 | Em. |
| | 13 | 5 5 21·0 | 10 30 38·4 | Im. |
| | 13 | 7 27 58·1 | 12 53 39·0 | Em. |
| | 16 | 18 23 32·0 | 0 2 50·2 | Im. |
| | 16 | 20 46 1·0 | 2 25 42·6 | Em. |
| | 20 | 7 42 50·7 | 13 36 9·9 | Im. |
| | 20* | 10 5 11·3 | 15 58 53·9 | Em. |
| | 23 | 21 1 3·3 | 3 8 23·3 | Im. |
| | 23 | 23 23 17·0 | 5 31 0·3 | Em. |
| | 27* | 10 20 20·6 | 16 41 41·6 | Im. |
| | 27 | 12 42 27·4 | 19 4 11·7 | Em. |
| | 30 | 23 38 34·0 | 6 13 55·8 | Im. |
| | 31 | 2 0 34·1 | 8 36 19·2 | Em. |
| III. | 7 | 17 23 9·5 | 22 26 48·7 | Im. |
| | 7 | 19 53 30·0 | 0 57 33·9 | Em. |
| | 14 | 21 21 53·5 | 2 53 47·9 | Im. |
| | 14 | 23 51 28·9 | 5 23 47·9 | Em. |
| | 22 | 1 20 38·3 | 7 20 47·8 | Im. |
| | 22 | 3 49 29·3 | 9 50 3·2 | Em. |
| | 29 | 5 19 37·8 | 11 48 2·5 | Im. |
| | 29 | 7 47 44·9 | 14 16 33·9 | Em. |




## APPROXIMATE SIDEREAL TIMES
OF THE
## OCCULTATIONS OF JUPITER'S SATELLITES BY JUPITER,
AND OF THE
## TRANSITS OF THE SATELLITES AND THEIR SHADOWS OVER THE DISC OF THE PLANET.

| Satellite. | Occultations. | | Transits of Satellites. | | Transits of Shadow | |
|---|---|---|---|---|---|---|
| | Immersion. | Emersion. | Ingress. | Egress. | Ingress. | Egress |
| | d h m | d h m | d h m | d h m | d h m | d h |
| I. | 2 19 18 | | 1 21 58 | 1 0 13 | 1 23 5 | 1 1 |
| | 4 13 52 | | 3* 16 33 | 3 18 48 | 3 17 41 | 3 19 |
| | 6 8 27 | | 5 11 8 | 5 13 22 | 5 12 17 | 5* 14 |
| | 7 3 2 | | 7 5 42 | 7 7 57 | 7 6 53 | 7 9 |
| | 9 21 36 | | 8 0 17 | 8 2 32 | 8 1 29 | 8 3 |
| | 11* 16 11 | | 10 18 52 | 10 21 7 | 10 20 5 | 10 22 |
| | 13 10 46 | In | 12 13 27 | 12* 15 42 | 12 14 40 | 12* 16 |
| | 14 5 21 | the | 14 8 2 | 14 10 17 | 14 9 16 | 14 11 |
| | 16 23 56 | | 15 2 38 | 15 4 53 | 15 3 52 | 16 6 |
| | 18 18 31 | Shadow. | 17 21 13 | 17 23 28 | 17 22 28 | 17 0 |
| | 20 13 6 | | 19* 15 48 | 19 18 3 | 19* 17 3 | 19 19 |
| | 22 7 42 | | 21 10 24 | 21 12 39 | 21 11 39 | 21 13 |
| | 23 2 17 | | 22 4 59 | 23 7 14 | 23 6 15 | 23 8 |
| | 25 20 52 | | 24 23 34 | 24 1 50 | 24 0 51 | 24 3 |
| | 27 15 28 | | 26 18 10 | 26 20 25 | 26 19 27 | 26 21 |
| | 29 10 3 | | 28 12 46 | 28 15 1 | 28 14 2 | 28* 16 |
| | 30 4 39 | | 30 7 21 | 30 9 37 | 30 8 38 | 30 10 |
| II. | 2* 15 30 | In the | 4 10 25 | 4 12 55 | 4 12 47 | 4* 15 |
| | 6 4 59 | Shadow. | 7 23 51 | 7 2 22 | 7 2 17 | 7 4 |
| | 9 18 27 | | 11 13 19 | 11* 15 51 | 11* 15 49 | 11 18 |
| | 13 7 58 | 13 10 29 | 14 2 47 | 14 5 19 | 14 5 20 | 15 7 |
| | 16 21 27 | 16 23 59 | 18* 16 17 | 18 18 48 | 18 18 51 | 18 21 |
| | 20 10 58 | 20 13 30 | 21 5 45 | 22 8 17 | 22 8 22 | 22 10 |
| | 23 0 29 | 23 3 1 | 25 19 16 | 25 21 48 | 25 21 54 | 25 0 |
| | 27 14 1 | 27* 16 33 | 29 8 46 | 29 11 18 | 29 11 25 | 29 13 |
| | 30 3 33 | 30 6 5 | | | | |
| III. | 7* 17 31 | 7 20 22 | 3 3 24 | 4 6 14 | 4 8 5 | 4 10 |
| | 14 21 45 | 14 0 38 | 11 7 36 | 11 10 28 | 11 12 32 | 11* 15 |
| | 21 2 3 | 21 4 57 | 18 11 53 | 18 14 47 | 18* 17 1 | 18 19 |
| | 28 6 26 | 29 9 21 | 25* 16 15 | 25 19 9 | 25 21 29 | 25 0 |

| For correcting the Places of the Fixed Stars. At Mean Midnight, Logarithm of A | B | C | D | Mean Time of Transit of the First Point of Aries. | Mean Equinoctial Time, adding $0^d$·293960. Days. | From Mean Noon of January 1. Day of the Year. | Fraction of the Year. |
|---|---|---|---|---|---|---|---|
| | | | | h m s | | | |
| −0 ·7898 | −1 ·2837 | +9 ·6554 | −0 ·9356 | 19 19 40 ·96 | 70 | 151 | ·413 |
| 0 ·7685 | 1 ·2862 | 9 ·6589 | 0 ·9350 | 19 15 45 ·04 | 71 | 152 | ·416 |
| 0 ·7460 | 1 ·2885 | 9 ·6624 | 0 ·9344 | 19 11 49 ·13 | 72 | 153 | ·419 |
| −0 ·7221 | −1 ·2907 | +9 ·6659 | −0 ·9338 | 19 7 53 ·22 | 73 | 154 | ·422 |
| 0 ·6966 | 1 ·2928 | 9 ·6694 | 0 ·9333 | 19 3 57 ·31 | 74 | 155 | ·424 |
| 0 ·6694 | 1 ·2948 | 9 ·6729 | 0 ·9327 | 19 0 1 ·41 | 75 | 156 | ·427 |
| −0 ·6404 | −1 ·2966 | +9 ·6764 | −0 ·9322 | 18 56 5 ·50 | 76 | 157 | ·430 |
| 0 ·6091 | 1 ·2982 | 9 ·6799 | 0 ·9317 | 18 52 9 ·59 | 77 | 158 | ·433 |
| 0 ·5753 | 1 ·2998 | 9 ·6833 | 0 ·9313 | 18 48 13 ·68 | 78 | 159 | ·435 |
| −0 ·5385 | −1 ·3012 | +9 ·6867 | −0 ·9309 | 18 44 17 ·76 | 79 | 160 | ·438 |
| 0 ·4981 | 1 ·3025 | 9 ·6901 | 0 ·9305 | 18 40 21 ·85 | 80 | 161 | ·441 |
| 0 ·4535 | 1 ·3037 | 9 ·6935 | 0 ·9301 | 18 36 25 ·93 | 81 | 162 | ·444 |
| −0 ·4036 | −1 ·3048 | +9 ·6969 | −0 ·9298 | 18 32 30 ·01 | 82 | 163 | ·446 |
| 0 ·3472 | 1 ·3057 | 9 ·7002 | 0 ·9295 | 18 28 34 ·09 | 83 | 164 | ·449 |
| 0 ·2821 | 1 ·3065 | 9 ·7035 | 0 ·9292 | 18 24 38 ·18 | 84 | 165 | ·452 |
| −0 ·2055 | −1 ·3072 | +9 ·7069 | −0 ·9290 | 18 20 42 ·27 | 85 | 166 | ·454 |
| 0 ·1122 | 1 ·3077 | 9 ·7102 | 0 ·9288 | 18 16 46 ·36 | 86 | 167 | ·457 |
| 9 ·9931 | 1 ·3082 | 9 ·7134 | 0 ·9286 | 18 12 50 ·45 | 87 | 168 | ·460 |
| −9 ·8284 | −1 ·3085 | +9 ·7167 | −0 ·9284 | 18 8 54 ·54 | 88 | 169 | ·463 |
| 9 ·5597 | 1 ·3087 | 9 ·7199 | 0 ·9283 | 18 4 58 ·63 | 89 | 170 | ·465 |
| −8 ·7158 | 1 ·3088 | 9 ·7231 | 0 ·9282 | 18 1 2 ·72 | 90 | 171 | ·468 |
| +9 ·4130 | −1 ·3087 | +9 ·7262 | −0 ·9281 | 17 57 6 ·81 | 91 | 172 | ·471 |
| 9 ·7555 | 1 ·3086 | 9 ·7294 | 0 ·9281 | 17 53 10 ·90 | 92 | 173 | ·474 |
| 9 ·9445 | 1 ·3083 | 9 ·7325 | 0 ·9281 | 17 49 14 ·99 | 93 | 174 | ·476 |
| +0 ·0757 | −1 ·3079 | +9 ·7356 | −0 ·9281 | 17 45 19 ·07 | 94 | 175 | ·479 |
| 0 ·1761 | 1 ·3074 | 9 ·7387 | 0 ·9282 | 17 41 23 ·15 | 95 | 176 | ·482 |
| 0 ·2576 | 1 ·3067 | 9 ·7417 | 0 ·9283 | 17 37 27 ·23 | 96 | 177 | ·485 |
| +0 ·3260 | −1 ·3060 | +9 ·7447 | −0 ·9284 | 17 33 31 ·31 | 97 | 178 | ·487 |
| 0 ·3850 | 1 ·3051 | 9 ·7477 | 0 ·9285 | 17 29 35 ·40 | 98 | 179 | ·490 |
| 0 ·4369 | 1 ·3041 | 9 ·7507 | 0 ·9287 | 17 25 39 ·48 | 99 | 180 | ·493 |
| +0 ·4831 | −1 ·3029 | +9 ·7536 | −0 ·9289 | 17 21 43 ·57 | 100 | 181 | ·496 |

## AT APPARENT NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | Diff. for 1 hour. | Apparent Declination. | Diff. for 1 hour. | Sidereal Time of the Semidiam. passing the Meridian.* | Equation of Time, to be added to Apparent Time. | 1 |
|---|---|---|---|---|---|---|---|---|
| | | h m s | s | ° ′ ″ | ″ | m s | m s | |
| Mon. | 1 | 6 38 44 ·49 | 10 ·340 | N.23 9 48 ·9 | 10 ·08 | 1 8 ·72 | 3 18 ·65 | 0 |
| Tues. | 2 | 6 42 52 ·65 | 10 ·330 | 23 5 47 ·0 | 11 ·08 | 1 8 ·68 | 3 30 ·22 | 0 |
| Wed. | 3 | 6 47 0 ·56 | 10 ·319 | 23 1 21 ·0 | 12 ·09 | 1 8 ·64 | 3 41 ·55 | 0 |
| Thur. | 4 | 6 51 8 ·22 | 10 ·307 | 22 56 30 ·8 | 13 ·10 | 1 8 ·60 | 3 52 ·62 | 0 |
| Frid. | 5 | 6 55 15 ·58 | 10 ·294 | 22 51 16 ·4 | 14 ·09 | 1 8 ·56 | 4 3 ·40 | 0 |
| Sat. | 6 | 6 59 22 ·64 | 10 ·281 | 22 45 38 ·2 | 15 ·08 | 1 8 ·51 | 4 13 ·88 | 0 |
| *Sun.* | 7 | 7 3 29 ·40 | 10 ·267 | 22 39 36 ·2 | 16 ·07 | 1 8 ·46 | 4 24 ·05 | 0 |
| Mon. | 8 | 7 7 35 ·80 | 10 ·251 | 22 33 10 ·5 | 17 ·05 | 1 8 ·41 | 4 33 ·87 | 0 |
| Tues. | 9 | 7 11 41 ·83 | 10 ·235 | 22 26 21 ·3 | 18 ·02 | 1 8 ·36 | 4 43 ·30 | 0 |
| Wed. | 10 | 7 15 47 ·48 | 10 ·218 | 22 19 8 ·9 | 18 ·98 | 1 8 ·30 | 4 52 ·36 | 0 |
| Thur. | 11 | 7 19 52 ·71 | 10 ·200 | 22 11 33 ·4 | 19 ·94 | 1 8 ·24 | 5 1 ·00 | 0 |
| Frid. | 12 | 7 23 57 ·50 | 10 ·181 | 22 3 34 ·8 | 20 ·89 | 1 8 ·18 | 5 9 ·21 | 0 |
| Sat. | 13 | 7 28 1 ·84 | 10 ·160 | 21 55 13 ·5 | 21 ·83 | 1 8 ·12 | 5 16 ·97 | 0 |
| *Sun.* | 14 | 7 32 5 ·69 | 10 ·140 | 21 46 29 ·7 | 22 ·76 | 1 8 ·05 | 5 24 ·25 | 0 |
| Mon. | 15 | 7 36 9 ·05 | 10 ·119 | 21 37 23 ·5 | 23 ·68 | 1 7 ·98 | 5 31 ·04 | 0 |
| Tues. | 16 | 7 40 11 ·90 | 10 ·097 | 21 27 55 ·2 | 24 ·59 | 1 7 ·91 | 5 37 ·32 | 0 |
| Wed. | 17 | 7 44 14 ·24 | 10 ·075 | 21 18 5 ·0 | 25 ·50 | 1 7 ·84 | 5 43 ·08 | 0 |
| Thur. | 18 | 7 48 16 ·03 | 10 ·052 | 21 7 53 ·1 | 26 ·39 | 1 7 ·77 | 5 48 ·30 | 0 |
| Frid. | 19 | 7 52 17 ·27 | 10 ·028 | 20 57 19 ·8 | 27 ·27 | 1 7 ·70 | 5 52 ·98 | 0 |
| Sat. | 20 | 7 56 17 ·95 | 10 ·005 | 20 46 25 ·3 | 28 ·14 | 1 7 ·62 | 5 57 ·09 | 0 |
| *Sun.* | 21 | 8 0 18 ·06 | 9 ·981 | 20 35 9 ·9 | 29 ·00 | 1 7 ·54 | 6 0 ·63 | 0 |
| Mon. | 22 | 8 4 17 ·60 | 9 ·957 | 20 23 33 ·8 | 29 ·85 | 1 7 ·46 | 6 3 ·60 | 0 |
| Tues. | 23 | 8 8 16 ·56 | 9 ·933 | 20 11 37 ·3 | 30 ·70 | 1 7 ·38 | 6 5 ·99 | 0 |
| Wed. | 24 | 8 12 14 ·94 | 9 ·908 | 19 59 20 ·6 | 31 ·53 | 1 7 ·30 | 6 7 ·80 | 0 |
| Thur. | 25 | 8 16 12 ·73 | 9 ·883 | 19 46 43 ·9 | 32 ·35 | 1 7 ·22 | 6 9 ·03 | 0 |
| Frid. | 26 | 8 20 9 ·93 | 9 ·859 | 19 33 47 ·5 | 33 ·16 | 1 7 ·14 | 6 9 ·67 | 0 |
| Sat. | 27 | 8 24 6 ·54 | 9 ·834 | 19 20 31 ·7 | 33 ·96 | 1 7 ·05 | 6 9 ·72 | 0 |
| *Sun.* | 28 | 8 28 2 ·55 | 9 ·809 | 19 6 56 ·7 | 34 ·75 | 1 6 ·97 | 6 9 ·17 | 0 |
| Mon. | 29 | 8 31 57 ·97 | 9 ·785 | 18 53 2 ·7 | 35 ·53 | 1 6 ·89 | 6 8 ·04 | 0 |
| Tues. | 30 | 8 35 52 ·80 | 9 ·760 | 18 38 50 ·0 | 36 ·30 | 1 6 ·80 | 6 6 ·33 | 0 |
| Wed. | 31 | 8 39 47 ·04 | 9 ·736 | 18 24 18 ·8 | 37 ·06 | 1 6 ·71 | 6 4 ·02 | 0 |
| Thur. | 32 | 8 43 40 ·70 | | N.18 9 29 ·4 | | 1 6 ·62 | 6 1 ·14 | |

* *Mean* Time of the Semidiameter passing may be found by subtracting 0s·18 from the *Sidereal*

## AT MEAN NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | THE SUN'S Apparent Declination. | THE SUN'S Semidiam.* | Equation of Time, *to be subtracted from Mean Time.* | Sidereal Time. |
|---|---|---|---|---|---|---|
| | | h m s | ° ′ ″ | ′ ″ | m s | h m s |
| Mon. | 1 | 6 38 43 ·92 | N.23 9 49 ·4 | 15 45 ·1 | 3 18 ·62 | 6 35 25 ·30 |
| Tues. | 2 | 6 42 52 ·04 | 23 5 47 ·6 | 15 45 ·1 | 3 30 ·19 | 6 39 21 ·85 |
| Wed. | 3 | 6 46 59 ·93 | 23 1 21 ·7 | 15 45 ·1 | 3 41 ·53 | 6 43 18 ·40 |
| Thur. | 4 | 6 51 7 ·55 | 22 56 31 ·5 | 15 45 ·1 | 3 52 ·59 | 6 47 14 ·96 |
| Frid. | 5 | 6 55 14 ·88 | 22 51 17 ·3 | 15 45 ·1 | 4 3 ·37 | 6 51 11 ·51 |
| Sat. | 6 | 6 59 21 ·92 | 22 45 39 ·2 | 15 45 ·1 | 4 13 ·85 | 6 55 8 ·07 |
| *Sun.* | 7 | 7 3 28 ·65 | 22 39 37 ·3 | 15 45 ·1 | 4 24 ·02 | 6 59 4 ·63 |
| Mon. | 8 | 7 7 35 ·02 | 22 33 11 ·7 | 15 45 ·1 | 4 33 ·83 | 7 3 1 ·19 |
| Tues. | 9 | 7 11 41 ·03 | 22 26 22 ·7 | 15 45 ·1 | 4 43 ·27 | 7 6 57 ·76 |
| Wed. | 10 | 7 15 46 ·65 | 22 19 10 ·4 | 15 45 ·2 | 4 52 ·33 | 7 10 54 ·32 |
| Thur. | 11 | 7 19 51 ·85 | 22 11 35 ·0 | 15 45 ·2 | 5 0 ·97 | 7 14 50 ·88 |
| Frid. | 12 | 7 23 56 ·63 | 22 3 36 ·6 | 15 45 ·3 | 5 9 ·19 | 7 18 47 ·44 |
| Sat. | 13 | 7 28 0 ·95 | 21 55 15 ·4 | 15 45 ·3 | 5 16 ·95 | 7 22 44 ·00 |
| *Sun.* | 14 | 7 32 4 ·78 | 21 46 31 ·7 | 15 45 ·3 | 5 24 ·22 | 7 26 40 ·56 |
| Mon. | 15 | 7 36 8 ·12 | 21 37 25 ·7 | 15 45 ·4 | 5 31 ·01 | 7 30 37 ·11 |
| Tues. | 16 | 7 40 10 ·96 | 21 27 57 ·5 | 15 45 ·5 | 5 37 ·30 | 7 34 33 ·66 |
| Wed. | 17 | 7 44 13 ·28 | 21 18 7 ·4 | 15 45 ·5 | 5 43 ·06 | 7 38 30 ·22 |
| Thur. | 18 | 7 48 15 ·05 | 21 7 55 ·6 | 15 45 ·6 | 5 48 ·28 | 7 42 26 ·77 |
| Frid. | 19 | 7 52 16 ·28 | 20 57 22 ·4 | 15 45 ·7 | 5 52 ·95 | 7 46 23 ·33 |
| Sat. | 20 | 7 56 16 ·96 | 20 46 28 ·1 | 15 45 ·8 | 5 57 ·08 | 7 50 19 ·88 |
| *Sun.* | 21 | 8 0 17 ·06 | 20 35 12 ·8 | 15 45 ·9 | 6 0 ·62 | 7 54 16 ·44 |
| Mon. | 22 | 8 4 16 ·60 | 20 23 36 ·8 | 15 45 ·9 | 6 3 ·60 | 7 58 13 ·00 |
| Tues. | 23 | 8 8 15 ·55 | 20 11 40 ·4 | 15 46 ·0 | 6 5 ·98 | 8 2 9 ·57 |
| Wed. | 24 | 8 12 13 ·93 | 19 59 23 ·7 | 15 46 ·1 | 6 7 ·80 | 8 6 6 ·13 |
| Thur. | 25 | 8 16 11 ·71 | 19 46 47 ·1 | 15 46 ·2 | 6 9 ·02 | 8 10 2 ·69 |
| Frid. | 26 | 8 20 8 ·92 | 19 33 50 ·9 | 15 46 ·3 | 6 9 ·67 | 8 13 59 ·25 |
| Sat. | 27 | 8 24 5 ·53 | 19 20 35 ·1 | 15 46 ·4 | 6 9 ·72 | 8 17 55 ·81 |
| *Sun.* | 28 | 8 28 1 ·55 | 19 7 0 ·2 | 15 46 ·5 | 6 9 ·18 | 8 21 52 ·37 |
| Mon. | 29 | 8 31 56 ·97 | 18 53 6 ·3 | 15 46 ·6 | 6 8 ·05 | 8 25 48 ·92 |
| Tues. | 30 | 8 35 51 ·81 | 18 38 53 ·6 | 15 46 ·8 | 6 6 ·34 | 8 29 45 ·47 |
| Wed. | 31 | 8 39 46 ·05 | 18 24 22 ·5 | 15 46 ·9 | 6 4 ·03 | 8 33 42 ·02 |
| Thur. | 32 | 8 43 39 ·73 | N.18 9 33 ·1 | 15 47 ·0 | 6 1 ·16 | 8 37 38 ·57 |

* The Semidiameter for *Apparent* Noon may be assumed the same as that for *Mean* Noon.

## MEAN TIME.

| Day of the Month. | THE SUN'S *Apparent* Longitude. Noon. | THE SUN'S *Apparent* Latitude. Noon. | Logarithm of the Radius Vector of the Earth. Noon. | THE MOON'S Semidiameter. Noon. | THE MOON'S Semidiameter. Midnight. | THE MOON'S Horizontal Parallax. Noon. | THE MOON'S Horizontal Parallax. Midnight. |
|---|---|---|---|---|---|---|---|
| | ° ′ ″ | ″ | | ′ ″ | ′ ″ | ′ ″ | ′ ″ |
| 1 | 98 53 44·8 | S.0·18 | 0·0072109 | 15 49·5 | 15 53·0 | 58 4·4 | 58 17·4 |
| 2 | 99 50 56·0 | S.0·04 | 0·0072152 | 15 56·5 | 15 59·7 | 58 30·0 | 58 41·7 |
| 3 | 100 48 7·5 | N.0·10 | 0·0072176 | 16 2·7 | 16 5·4 | 58 52·8 | 59 2·9 |
| 4 | 101 45 19·3 | 0·22 | 0·0072181 | 16 8·0 | 16 10·3 | 59 12·3 | 59 20·7 |
| 5 | 102 42 31·3 | 0·34 | 0·0072165 | 16 12·2 | 16 13·7 | 59 27·8 | 59 33·3 |
| 6 | 103 39 43·8 | 0·43 | 0·0072126 | 16 14·8 | 16 15·3 | 59 37·2 | 59 39·1 |
| 7 | 104 36 56·9 | 0·50 | 0·0072064 | 16 15·3 | 16 14·5 | 59 38·9 | 59 36·3 |
| 8 | 105 34 10·3 | 0·54 | 0·0071977 | 16 13·2 | 16 11·1 | 59 31·3 | 59 23·7 |
| 9 | 106 31 24·0 | 0·55 | 0·0071866 | 16 8·3 | 16 4·8 | 59 13·3 | 59 0·6 |
| 10 | 107 28 38·1 | 0·54 | 0·0071728 | 16 0·7 | 15 56·1 | 58 45·6 | 58 28·5 |
| 11 | 108 25 52·5 | 0·49 | 0·0071564 | 15 50·9 | 15 45·4 | 58 9·6 | 57 49·4 |
| 12 | 109 23 7·2 | 0·41 | 0·0071373 | 15 39·6 | 15 33·7 | 57 28·2 | 57 6·5 |
| 13 | 110 20 22·1 | 0·31 | 0·0071156 | 15 27·8 | 15 21·8 | 56 44·6 | 56 22·7 |
| 14 | 111 17 37·0 | 0·20 | 0·0070914 | 15 16·1 | 15 10·7 | 56 1·8 | 55 42·1 |
| 15 | 112 14 52·2 | N.0·08 | 0·0070646 | 15 5·7 | 15 1·2 | 55 23·7 | 55 7·0 |
| 16 | 113 12 7·5 | S.0·05 | 0·0070354 | 14 57·1 | 14 53·7 | 54 52·2 | 54 39·7 |
| 17 | 114 9 23·1 | 0·18 | 0·0070040 | 14 50·9 | 14 48·9 | 54 29·5 | 54 21·9 |
| 18 | 115 6 38·8 | 0·29 | 0·0069703 | 14 47·4 | 14 46·7 | 54 16·5 | 54 14·0 |
| 19 | 116 3 54·8 | 0·39 | 0·0069347 | 14 46·7 | 14 47·4 | 54 13·9 | 54 16·4 |
| 20 | 117 1 11·0 | 0·47 | 0·0068971 | 14 48·7 | 14 50·8 | 54 21·4 | 54 28·8 |
| 21 | 117 58 27·5 | 0·51 | 0·0068579 | 14 53·3 | 14 56·4 | 54 38·2 | 54 49·6 |
| 22 | 118 55 44·4 | 0·53 | 0·0068170 | 15 0·1 | 15 4·2 | 55 3·2 | 55 18·3 |
| 23 | 119 53 1·7 | 0·52 | 0·0067746 | 15 8·7 | 15 13·4 | 55 34·6 | 55 52·0 |
| 24 | 120 50 19·6 | 0·48 | 0·0067307 | 15 18·4 | 15 23·5 | 56 10·1 | 56 28·9 |
| 25 | 121 47 38·0 | 0·41 | 0·0066855 | 15 28·7 | 15 33·7 | 56 47·9 | 57 6·4 |
| 26 | 122 44 57·1 | 0·32 | 0·0066390 | 15 38·7 | 15 43·5 | 57 24·7 | 57 42·4 |
| 27 | 123 42 17·0 | 0·20 | 0·0065911 | 15 48·0 | 15 52·1 | 57 58·8 | 58 14·1 |
| 28 | 124 39 37·6 | S.0·07 | 0·0065420 | 15 55·9 | 15 59·2 | 58 27·8 | 58 39·9 |
| 29 | 125 36 59·1 | N.0·07 | 0·0064915 | 16 2·1 | 16 4·5 | 58 50·6 | 58 59·3 |
| 30 | 126 34 21·7 | 0·20 | 0·0064396 | 16 6·3 | 16 7·8 | 59 6·1 | 59 11·5 |
| 31 | 127 31 45·4 | 0·33 | 0·0063863 | 16 8·8 | 16 9·3 | 59 15·1 | 59 17·2 |
| 32 | 128 29 10·2 | N.0·45 | 0·0063313 | 16 9·5 | 16 9·3 | 59 17·8 | 59 17·1 |

## MEAN TIME.

| Day of the Week. | Day of the Month. | THE MOON'S Longitude. Noon. | Longitude. Midnight. | Latitude. Noon. | Latitude. Midnight. | Age. Noon. | Meridian Passage. |
|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | ° ′ ″ | ° ′ ″ | ° ′ ″ | d | h m |
| on. | 1 | 333 53 53 ·8 | 340 42 52 ·8 | S. 1 15 33 ·8 | S. 0 40 0 ·4 | 19 ·9 | 16 20 ·6 |
| es. | 2 | 347 34 29 ·5 | 354 28 45 ·2 | 0 3 37 ·3 | N. 0 33 4 ·6 | 20 ·9 | 17 7 ·1 |
| ed. | 3 | 1 25 40 ·5 | 8 25 16 ·2 | N. 1 9 31 ·8 | 1 45 11 ·2 | 21 ·9 | 17 54 ·2 |
| ur. | 4 | 15 27 29 ·8 | 22 32 16 ·3 | 2 19 27 ·6 | 2 51 47 ·6 | 22 ·9 | 18 43 ·4 |
| id. | 5 | 29 39 26 ·8 | 36 48 48 ·0 | 3 21 37 ·6 | 3 48 27 ·1 | 23 ·9 | 19 36 ·0 |
| t. | 6 | 44 0 0 ·1 | 51 12 38 ·1 | 4 11 45 ·3 | 4 31 8 ·3 | 24 ·9 | 20 32 ·8 |
| n. | 7 | 58 26 11 ·3 | 65 40 2 ·9 | 4 46 13 ·1 | 4 56 44 ·0 | 25 ·9 | 21 33 ·8 |
| on. | 8 | 72 53 31 ·4 | 80 5 52 ·9 | 5 2 30 ·3 | 5 3 27 ·5 | 26 ·9 | 22 37 ·2 |
| es. | 9 | 87 16 21 ·4 | 94 24 9 ·9 | 4 59 37 ·0 | 4 51 7 ·3 | 27 ·9 | 23 40 ·0 |
| ed. | 10 | 101 28 35 ·4 | 108 28 57 ·8 | 4 38 12 ·4 | 4 21 11 ·7 | 28 ·9 | ó |
| ur. | 11 | 115 24 42 ·6 | 122 15 22 ·7 | 4 0 28 ·7 | 3 36 30 ·5 | 0 ·5 | 0 39 ·4 |
| id. | 12 | 129 0 37 ·9 | 135 40 15 ·9 | 3 9 45 ·0 | 2 40 42 ·5 | 1 ·5 | 1 33 ·8 |
| t. | 13 | 142 14 13 ·1 | 148 42 33 ·2 | 2 9 53 ·6 | 1 37 46 ·8 | 2 ·5 | 2 23 ·1 |
| n. | 14 | 155 5 27 ·2 | 161 23 13 ·1 | N. 1 4 50 ·0 | N. 0 31 29 ·3 | 3 ·5 | 3 8 ·2 |
| on. | 15 | 167 36 13 ·9 | 173 44 57 ·0 | S. 0 1 51 ·0 | S. 0 34 49 ·0 | 4 ·5 | 3 50 ·1 |
| es. | 16 | 179 49 54 ·5 | 185 51 41 ·1 | 1 7 4 ·5 | 1 38 19 ·0 | 5 ·5 | 4 30 ·3 |
| ed. | 17 | 191 50 53 ·5 | 197 48 9 ·8 | 2 8 15 ·5 | 2 36 39 ·0 | 6 ·5 | 5 10 ·1 |
| ur. | 18 | 203 44 8 ·5 | 209 39 29 ·5 | 3 3 14 ·5 | 3 27 48 ·9 | 7 ·5 | 5 50 ·5 |
| id. | 19 | 215 34 50 ·2 | 221 30 49 ·8 | 3 50 9 ·0 | 4 10 2 ·6 | 8 ·5 | 6 32 ·8 |
| t. | 20 | 227 28 3 ·2 | 233 27 4 ·5 | 4 27 17 ·7 | 4 41 43 ·0 | 9 ·5 | 7 17 ·9 |
| n. | 21 | 239 28 25 ·3 | 245 32 34 ·6 | 4 53 6 ·4 | 5 1 18 ·4 | 10 ·5 | 8 6 ·4 |
| on. | 22 | 251 39 57 ·9 | 257 50 56 ·6 | 5 6 8 ·1 | 5 7 27 ·3 | 11 ·5 | 8 58 ·3 |
| es. | 23 | 264 5 47 ·6 | 270 24 43 ·9 | 5 5 8 ·6 | 4 59 5 ·9 | 12 ·5 | 9 53 ·0 |
| ed. | 24 | 276 47 53 ·6 | 283 15 19 ·5 | 4 49 16 ·4 | 4 35 39 ·2 | 13 ·5 | 10 48 ·9 |
| ur. | 25 | 289 46 59 ·8 | 296 22 49 ·1 | 4 18 17 ·6 | 3 57 17 ·9 | 14 ·5 | 11 44 ·3 |
| id. | 26 | 303 2 36 ·6 | 309 46 9 ·6 | 3 32 50 ·8 | 3 5 11 ·4 | 15 ·5 | 12 37 ·8 |
| t. | 27 | 316 33 11 ·6 | 323 23 25 ·2 | 2 34 38 ·7 | 2 1 35 ·9 | 16 ·5 | 13 28 ·7 |
| n. | 28 | 330 16 30 ·3 | 337 12 8 ·3 | 1 26 30 ·9 | S. 0 49 53 ·5 | 17 ·5 | 14 17 ·5 |
| on. | 29 | 344 9 58 ·7 | 351 9 43 ·7 | S. 0 12 18 ·0 | N. 0 25 41 ·6 | 18 ·5 | 15 4 ·9 |
| es. | 30 | 358 11 5 ·3 | 5 13 47 ·5 | N. 1 3 27 ·8 | 1 40 24 ·8 | 19 ·5 | 15 52 ·2 |
| ed. | 31 | 12 17 33 ·6 | 19 22 11 ·6 | 2 15 55 ·7 | 2 49 26 ·4 | 20 ·5 | 16 40 ·8 |
| ur. | 32 | 26 27 26 ·0 | 33 33 5 ·2 | N. 3 20 24 ·0 | N. 3 48 18 ·4 | 21 ·5 | 17 31 ·9 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *MONDAY* 1. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 22 25 3·83 | S. 11 15 42·4 | 151·27 |
| 1 | 22 27 8·41 | 11 0 34·8 | 151·88 |
| 2 | 22 29 12·85 | 10 45 23·5 | 152·50 |
| 3 | 22 31 17·16 | 10 30 8·5 | 153·08 |
| 4 | 22 33 21·33 | 10 14 50·0 | 153·67 |
| 5 | 22 35 25·37 | 9 59 28·0 | 154·22 |
| 6 | 22 37 29·28 | 9 44 2·7 | 154·80 |
| 7 | 22 39 33·08 | 9 28 33·9 | 155·32 |
| 8 | 22 41 36·76 | 9 13 2·0 | 155·85 |
| 9 | 22 43 40·32 | 8 57 26·9 | 156·38 |
| 10 | 22 45 43·78 | 8 41 48·6 | 156·87 |
| 11 | 22 47 47·13 | 8 26 7·4 | 157·37 |
| 12 | 22 49 50·38 | 8 10 23·2 | 157·83 |
| 13 | 22 51 53·54 | 7 54 36·2 | 158·30 |
| 14 | 22 53 56·61 | 7 38 46·4 | 158·75 |
| 15 | 22 55 59·59 | 7 22 53·9 | 159·18 |
| 16 | 22 58 2·50 | 7 6 58·8 | 159·62 |
| 17 | 23 0 5·33 | 6 51 1·1 | 160·03 |
| 18 | 23 2 8·08 | 6 35 0·9 | 160·43 |
| 19 | 23 4 10·77 | 6 18 58·3 | 160·82 |
| 20 | 23 6 13·41 | 6 2 53·4 | 161·20 |
| 21 | 23 8 15·98 | 5 46 46·2 | 161·55 |
| 22 | 23 10 18·51 | 5 30 36·9 | 161·90 |
| 23 | 23 12 20·99 | S. 5 14 25·5 | 162·25 |
| | *TUESDAY* 2. | | |
| 0 | 23 14 23·43 | S. 4 58 12·0 | 162·57 |
| 1 | 23 16 25·84 | 4 41 56·6 | 162·88 |
| 2 | 23 18 28·21 | 4 25 39·3 | 163·18 |
| 3 | 23 20 30·56 | 4 9 20·2 | 163·47 |
| 4 | 23 22 32·90 | 3 52 59·4 | 163·73 |
| 5 | 23 24 35·21 | 3 36 37·0 | 164·00 |
| 6 | 23 26 37·52 | 3 20 13·0 | 164·25 |
| 7 | 23 28 39·83 | 3 3 47·5 | 164·47 |
| 8 | 23 30 42·13 | 2 47 20·7 | 164·70 |
| 9 | 23 32 44·44 | 2 30 52·5 | 164·90 |
| 10 | 23 34 46·77 | 2 14 23·1 | 165·10 |
| 11 | 23 36 49·11 | 1 57 52·5 | 165·27 |
| 12 | 23 38 51·47 | 1 41 20·9 | 165·43 |
| 13 | 23 40 53·86 | 1 24 48·3 | 165·58 |
| 14 | 23 42 56·29 | 1 8 14·8 | 165·73 |
| 15 | 23 44 58·76 | 0 51 40·4 | 165·85 |
| 16 | 23 47 1·27 | 0 35 5·3 | 165·97 |
| 17 | 23 49 3·83 | 0 18 29·5 | 166·07 |
| 18 | 23 51 6·44 | S. 0 1 53·1 | 166·17 |
| 19 | 23 53 9·12 | N. 0 14 43·9 | 166·23 |
| 20 | 23 55 11·87 | 0 31 21·3 | 166·28 |
| 21 | 23 57 14·68 | 0 47 59·0 | 166·33 |
| 22 | 23 59 17·58 | 1 4 37·0 | 166·37 |
| 23 | 0 1 20·56 | 1 21 15·2 | 166·38 |
| 24 | 0 3 23·63 | N. 1 37 53·5 | |

| Hour. | Right Ascension. | Declination. |
|---|---|---|
| | *WEDNESDAY* 3. | |
| | h m s | ° ′ ″ |
| 0 | 0 3 23·63 | N. 1 37 53·5 |
| 1 | 0 5 26·80 | 1 54 31·9 |
| 2 | 0 7 30·06 | 2 11 10·2 |
| 3 | 0 9 33·43 | 2 27 48·4 |
| 4 | 0 11 36·92 | 2 44 26·4 |
| 5 | 0 13 40·52 | 3 1 4·1 |
| 6 | 0 15 44·24 | 3 17 41·3 |
| 7 | 0 17 48·10 | 3 34 18·2 |
| 8 | 0 19 52·09 | 3 50 54·4 |
| 9 | 0 21 56·21 | 4 7 30·0 |
| 10 | 0 24 0·48 | 4 24 4·9 |
| 11 | 0 26 4·91 | 4 40 39·0 |
| 12 | 0 28 9·49 | 4 57 12·1 |
| 13 | 0 30 14·24 | 5 13 44·2 |
| 14 | 0 32 19·15 | 5 30 15·3 |
| 15 | 0 34 24·23 | 5 46 45·2 |
| 16 | 0 36 29·50 | 6 3 13·8 |
| 17 | 0 38 34·95 | 6 19 41·1 |
| 18 | 0 40 40·60 | 6 36 6·9 |
| 19 | 0 42 46·44 | 6 52 31·2 |
| 20 | 0 44 52·48 | 7 8 53·9 |
| 21 | 0 46 58·72 | 7 25 14·9 |
| 22 | 0 49 5·18 | 7 41 34·1 |
| 23 | 0 51 11·86 | N. 7 57 51·4 |
| | *THURSDAY* 4. | |
| 0 | 0 53 18·76 | N. 8 14 6·8 |
| 1 | 0 55 25·89 | 8 30 20·1 |
| 2 | 0 57 33·25 | 8 46 31·2 |
| 3 | 0 59 40·86 | 9 2 40·1 |
| 4 | 1 1 48·71 | 9 18 46·6 |
| 5 | 1 3 56·81 | 9 34 50·7 |
| 6 | 1 6 5·17 | 9 50 52·2 |
| 7 | 1 8 13·79 | 10 6 51·1 |
| 8 | 1 10 22·67 | 10 22 47·3 |
| 9 | 1 12 31·83 | 10 38 40·6 |
| 10 | 1 14 41·26 | 10 54 31·0 |
| 11 | 1 16 50·98 | 11 10 18·4 |
| 12 | 1 19 0·98 | 11 26 2·6 |
| 13 | 1 21 11·28 | 11 41 43·6 |
| 14 | 1 23 21·87 | 11 57 21·3 |
| 15 | 1 25 32·76 | 12 12 55·5 |
| 16 | 1 27 43·96 | 12 28 26·3 |
| 17 | 1 29 55·48 | 12 43 53·4 |
| 18 | 1 32 7·31 | 12 59 16·8 |
| 19 | 1 34 19·46 | 13 14 36·3 |
| 20 | 1 36 31·94 | 13 29 52·0 |
| 21 | 1 38 44·74 | 13 45 3·6 |
| 22 | 1 40 57·89 | 14 0 11·0 |
| 23 | 1 43 11·37 | 14 15 14·3 |
| 24 | 1 45 25·19 | N. 14 30 13·2 |

## MEAN TIME.

### HE MOON'S RIGHT ASCENSION AND DECLINATION.

| Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|
| *FRIDAY* 5. | | |
| m s | ° ′ ″ | ″ |
| 25 ·19 | N. 14 30 13 ·2 | 149 ·08 |
| 39 ·36 | 14 45 7 ·7 | 148 ·33 |
| 53 ·89 | 14 59 57 ·7 | 147 ·55 |
| 8 ·77 | 15 14 43 ·0 | 146 ·75 |
| 24 ·01 | 15 29 23 ·5 | 145 ·95 |
| 39 ·61 | 15 43 59 ·2 | 145 ·12 |
| 55 ·58 | 15 58 29 ·9 | 144 ·27 |
| 11 ·92 | 16 12 55 ·5 | 143 ·40 |
| 28 ·64 | 16 27 15 ·9 | 142 ·52 |
| 45 ·73 | 16 41 31 ·0 | 141 ·60 |
| 3 ·20 | 16 55 40 ·6 | 140 ·70 |
| 21 ·06 | 17 9 44 ·8 | 139 ·75 |
| 39 ·30 | 17 23 43 ·3 | 138 ·78 |
| 57 ·94 | 17 37 36 ·0 | 137 ·82 |
| 16 ·97 | 17 51 22 ·9 | 136 ·82 |
| 36 ·39 | 18 5 3 ·8 | 135 ·80 |
| 56 ·22 | 18 18 38 ·6 | 134 ·78 |
| 16 ·45 | 18 32 7 ·3 | 133 ·72 |
| 37 ·08 | 18 45 29 ·6 | 132 ·65 |
| 58 ·11 | 18 58 45 ·5 | 131 ·57 |
| 19 ·55 | 19 11 54 ·9 | 130 ·47 |
| 41 ·39 | 19 24 57 ·7 | 129 ·35 |
| 3 ·65 | 19 37 53 ·8 | 128 ·20 |
| 26 ·32 | N. 19 50 43 ·0 | 127 ·03 |
| *SATURDAY* 6. | | |
| 49 ·40 | N. 20 3 25 ·2 | 125 ·87 |
| 12 ·90 | 20 16 0 ·4 | 124 ·68 |
| 36 ·81 | 20 28 28 ·5 | 123 ·45 |
| 1 ·14 | 20 40 49 ·2 | 122 ·22 |
| 25 ·88 | 20 53 2 ·5 | 120 ·97 |
| 51 ·04 | 21 5 8 ·3 | 119 ·70 |
| 16 ·62 | 21 17 6 ·5 | 118 ·42 |
| 42 ·61 | 21 28 57 ·0 | 117 ·08 |
| 9 ·02 | 21 40 39 ·5 | 115 ·78 |
| 35 ·84 | 21 52 14 ·2 | 114 ·42 |
| 3 ·08 | 22 3 40 ·7 | 113 ·07 |
| 30 ·73 | 22 14 59 ·1 | 111 ·68 |
| 58 ·80 | 22 26 9 ·2 | 110 ·28 |
| 27 ·28 | 22 37 10 ·9 | 108 ·85 |
| 56 ·18 | 22 48 4 ·0 | 107 ·43 |
| 25 ·48 | 22 58 48 ·6 | 105 ·97 |
| 55 ·19 | 23 9 24 ·4 | 104 ·48 |
| 25 ·30 | 23 19 51 ·3 | 103 ·02 |
| 55 ·82 | 23 30 9 ·4 | 101 ·50 |
| 26 ·73 | 23 40 18 ·4 | 99 ·97 |
| 58 ·05 | 23 50 18 ·2 | 98 ·43 |
| 29 ·75 | 24 0 8 ·8 | 96 ·88 |
| 1 ·84 | 24 9 50 ·1 | 95 ·30 |
| 34 ·32 | 24 19 21 ·9 | 93 ·70 |
| 7 ·18 | N. 24 28 44 ·1 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| *SUNDAY* 7. | | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 3 40 7 ·18 | N. 24 28 44 ·1 | 92 ·10 |
| 1 | 3 42 40 ·42 | 24 37 56 ·7 | 90 ·48 |
| 2 | 3 45 14 ·04 | 24 46 59 ·6 | 88 ·83 |
| 3 | 3 47 48 ·03 | 24 55 52 ·6 | 87 ·18 |
| 4 | 3 50 22 ·38 | 25 4 35 ·7 | 85 ·50 |
| 5 | 3 52 57 ·08 | 25 13 8 ·7 | 83 ·83 |
| 6 | 3 55 32 ·14 | 25 21 31 ·7 | 82 ·12 |
| 7 | 3 58 7 ·55 | 25 29 44 ·4 | 80 ·40 |
| 8 | 4 0 43 ·30 | 25 37 46 ·8 | 78 ·67 |
| 9 | 4 3 19 ·39 | 25 45 38 ·8 | 76 ·93 |
| 10 | 4 5 55 ·80 | 25 53 20 ·4 | 75 ·15 |
| 11 | 4 8 32 ·54 | 26 0 51 ·3 | 73 ·40 |
| 12 | 4 11 9 ·59 | 26 8 11 ·7 | 71 ·60 |
| 13 | 4 13 46 ·96 | 26 15 21 ·3 | 69 ·82 |
| 14 | 4 16 24 ·62 | 26 22 20 ·2 | 67 ·98 |
| 15 | 4 19 2 ·58 | 26 29 8 ·1 | 66 ·17 |
| 16 | 4 21 40 ·82 | 26 35 45 ·1 | 64 ·32 |
| 17 | 4 24 19 ·35 | 26 42 11 ·0 | 62 ·48 |
| 18 | 4 26 58 ·14 | 26 48 25 ·9 | 60 ·62 |
| 19 | 4 29 37 ·19 | 26 54 29 ·6 | 58 ·73 |
| 20 | 4 32 16 ·49 | 27 0 22 ·0 | 56 ·87 |
| 21 | 4 34 56 ·04 | 27 6 3 ·2 | 54 ·97 |
| 22 | 4 37 35 ·82 | 27 11 33 ·0 | 53 ·07 |
| 23 | 4 40 15 ·83 | N. 27 16 51 ·4 | 51 ·15 |
| *MONDAY* 8. | | | |
| 0 | 4 42 56 ·05 | N. 27 21 58 ·3 | 49 ·23 |
| 1 | 4 45 36 ·48 | 27 26 53 ·7 | 47 ·28 |
| 2 | 4 48 17 ·11 | 27 31 37 ·4 | 45 ·37 |
| 3 | 4 50 57 ·92 | 27 36 9 ·6 | 43 ·40 |
| 4 | 4 53 38 ·91 | 27 40 30 ·0 | 41 ·47 |
| 5 | 4 56 20 ·06 | 27 44 38 ·8 | 39 ·48 |
| 6 | 4 59 1 ·36 | 27 48 35 ·7 | 37 ·53 |
| 7 | 5 1 42 ·81 | 27 52 20 ·9 | 35 ·55 |
| 8 | 5 4 24 ·39 | 27 55 54 ·2 | 33 ·57 |
| 9 | 5 7 6 ·09 | 27 59 15 ·6 | 31 ·58 |
| 10 | 5 9 47 ·91 | 28 2 25 ·1 | 29 ·60 |
| 11 | 5 12 29 ·82 | 28 5 22 ·7 | 27 ·60 |
| 12 | 5 15 11 ·82 | 28 8 8 ·3 | 25 ·60 |
| 13 | 5 17 53 ·90 | 28 10 41 ·9 | 23 ·60 |
| 14 | 5 20 36 ·05 | 28 13 3 ·5 | 21 ·58 |
| 15 | 5 23 18 ·24 | 28 15 13 ·0 | 19 ·60 |
| 16 | 5 26 0 ·48 | 28 17 10 ·6 | 17 ·57 |
| 17 | 5 28 42 ·75 | 28 18 56 ·0 | 15 ·58 |
| 18 | 5 31 25 ·03 | 28 20 29 ·5 | 13 ·55 |
| 19 | 5 34 7 ·32 | 28 21 50 ·8 | 11 ·55 |
| 20 | 5 36 49 ·60 | 28 23 0 ·1 | 9 ·55 |
| 21 | 5 39 31 ·87 | 28 23 57 ·4 | 7 ·53 |
| 22 | 5 42 14 ·10 | 28 24 42 ·6 | 5 ·52 |
| 23 | 5 44 56 ·29 | 28 25 15 ·7 | 3 ·52 |
| 24 | 5 47 38 ·43 | N. 28 25 36 ·8 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 9. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 5 47 38·43 | N.28 25 36·8 | 1·50 |
| 1 | 5 50 20·50 | 28 25 45·8 | 0·48 |
| 2 | 5 53 2·49 | 28 25 42·9 | 2·50 |
| 3 | 5 55 44·39 | 28 25 27·9 | 4·48 |
| 4 | 5 58 26·18 | 28 25 1·0 | 6·47 |
| 5 | 6 1 7·86 | 28 24 22·2 | 8·47 |
| 6 | 6 3 49·41 | 28 23 31·4 | 10·45 |
| 7 | 6 6 30·83 | 28 22 28·7 | 12·42 |
| 8 | 6 9 12·09 | 28 21 14·2 | 14·40 |
| 9 | 6 11 53·20 | 28 19 47·8 | 16·35 |
| 10 | 6 14 34·13 | 28 18 9·7 | 18·30 |
| 11 | 6 17 14·88 | 28 16 19·9 | 20·27 |
| 12 | 6 19 55·44 | 28 14 18·3 | 22·20 |
| 13 | 6 22 35·79 | 28 12 5·1 | 24·13 |
| 14 | 6 25 15·92 | 28 9 40·3 | 26·07 |
| 15 | 6 27 55·83 | 28 7 3·9 | 27·98 |
| 16 | 6 30 35·50 | 28 4 16·0 | 29·88 |
| 17 | 6 33 14·92 | 28 1 16·7 | 31·77 |
| 18 | 6 35 54·08 | 27 58 6·1 | 33·67 |
| 19 | 6 38 32·97 | 27 54 44·1 | 35·53 |
| 20 | 6 41 11·58 | 27 51 10·9 | 37·40 |
| 21 | 6 43 49·91 | 27 47 26·5 | 39·27 |
| 22 | 6 46 27·93 | 27 43 30·9 | 41·08 |
| 23 | 6 49 5·65 | N.27 39 24·4 | 42·93 |
| | *WEDNESDAY* 10. | | |
| 0 | 6 51 43·05 | N.27 35 6·8 | 44·75 |
| 1 | 6 54 20·12 | 27 30 38·3 | 46·53 |
| 2 | 6 56 56·86 | 27 25 59·1 | 48·33 |
| 3 | 6 59 33·25 | 27 21 9·1 | 50·12 |
| 4 | 7 2 9·30 | 27 16 8·4 | 51·87 |
| 5 | 7 4 44·98 | 27 10 57·2 | 53·63 |
| 6 | 7 7 20·29 | 27 5 35·4 | 55·35 |
| 7 | 7 9 55·23 | 27 0 3·3 | 57·07 |
| 8 | 7 12 29·79 | 26 54 20·9 | 58·78 |
| 9 | 7 15 3·96 | 26 48 28·2 | 60·47 |
| 10 | 7 17 37·73 | 26 42 25·4 | 62·15 |
| 11 | 7 20 11·09 | 26 36 12·5 | 63·80 |
| 12 | 7 22 44·05 | 26 29 49·7 | 65·45 |
| 13 | 7 25 16·58 | 26 23 17·0 | 67·07 |
| 14 | 7 27 48·70 | 26 16 34·6 | 68·68 |
| 15 | 7 30 20·38 | 26 9 42·5 | 70·27 |
| 16 | 7 32 51·63 | 26 2 40·9 | 71·85 |
| 17 | 7 35 22·44 | 25 55 29·8 | 73·40 |
| 18 | 7 37 52·81 | 25 48 9·4 | 74·95 |
| 19 | 7 40 22·72 | 25 40 39·7 | 76·48 |
| 20 | 7 42 52·18 | 25 33 0·8 | 77·98 |
| 21 | 7 45 21·19 | 25 25 12·9 | 79·47 |
| 22 | 7 47 49·73 | 25 17 16·1 | 80·95 |
| 23 | 7 50 17·81 | 25 9 10·4 | 82·40 |
| 24 | 7 52 45·42 | N.25 0 56·0 | |

| Hour. | Right Ascension. | Declination. |
|---|---|---|
| | *THURSDAY* 11. | |
| | h m s | ° ′ ″ |
| 0 | 7 52 45·42 | N.25 0 56·0 |
| 1 | 7 55 12·55 | 24 52 33·0 |
| 2 | 7 57 39·21 | 24 44 1·4 |
| 3 | 8 0 5·39 | 24 35 21·5 |
| 4 | 8 2 31·09 | 24 26 33·3 |
| 5 | 8 4 56·31 | 24 17 36·8 |
| 6 | 8 7 21·04 | 24 8 32·3 |
| 7 | 8 9 45·28 | 23 59 19·8 |
| 8 | 8 12 9·03 | 23 49 59·4 |
| 9 | 8 14 32·29 | 23 40 31·3 |
| 10 | 8 16 55·05 | 23 30 55·5 |
| 11 | 8 19 17·33 | 23 21 12·2 |
| 12 | 8 21 39·10 | 23 11 21·4 |
| 13 | 8 24 0·38 | 23 1 23·3 |
| 14 | 8 26 21·16 | 22 51 18·0 |
| 15 | 8 28 41·46 | 22 41 5·6 |
| 16 | 8 31 1·25 | 22 30 46·2 |
| 17 | 8 33 20·54 | 22 20 19·9 |
| 18 | 8 35 39·34 | 22 9 46·9 |
| 19 | 8 37 57·64 | 21 59 7·2 |
| 20 | 8 40 15·45 | 21 48 20·9 |
| 21 | 8 42 32·76 | 21 37 28·2 |
| 22 | 8 44 49·58 | 21 26 29·1 |
| 23 | 8 47 5·91 | N.21 15 23·8 |
| | *FRIDAY* 12. | |
| 0 | 8 49 21·74 | N.21 4 12·4 |
| 1 | 8 51 37·08 | 20 52 55·0 |
| 2 | 8 53 51·94 | 20 41 31·7 |
| 3 | 8 56 6·31 | 20 30 2·6 |
| 4 | 8 58 20·19 | 20 18 27·7 |
| 5 | 9 0 33·59 | 20 6 47·3 |
| 6 | 9 2 46·51 | 19 55 1·5 |
| 7 | 9 4 58·96 | 19 43 10·2 |
| 8 | 9 7 10·92 | 19 31 13·6 |
| 9 | 9 9 22·42 | 19 19 11·9 |
| 10 | 9 11 33·44 | 19 7 5·1 |
| 11 | 9 13 44·00 | 18 54 53·3 |
| 12 | 9 15 54·09 | 18 42 36·7 |
| 13 | 9 18 3·72 | 18 30 15·3 |
| 14 | 9 20 12·89 | 18 17 49·2 |
| 15 | 9 22 21·61 | 18 5 18·6 |
| 16 | 9 24 29·87 | 17 52 43·4 |
| 17 | 9 26 37·68 | 17 40 3·9 |
| 18 | 9 28 45·05 | 17 27 20·1 |
| 19 | 9 30 51·98 | 17 14 32·1 |
| 20 | 9 32 58·47 | 17 1 40·0 |
| 21 | 9 35 4·52 | 16 48 43·9 |
| 22 | 9 37 10·14 | 16 35 43·9 |
| 23 | 9 39 15·34 | 16 22 40·1 |
| 24 | 9 41 20·11 | N.16 9 32·5 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SATURDAY* 13. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 9 41 20·11 | N.16 9 32·5 | 131·87 |
| 1 | 9 43 24·47 | 15 56 21·3 | 132·47 |
| 2 | 9 45 28·41 | 15 43 6·5 | 133·03 |
| 3 | 9 47 31·94 | 15 29 48·3 | 133·62 |
| 4 | 9 49 35·06 | 15 16 26·6 | 134·15 |
| 5 | 9 51 37·78 | 15 3 1·7 | 134·68 |
| 6 | 9 53 40·10 | 14 49 33·6 | 135·20 |
| 7 | 9 55 42·03 | 14 36 2·4 | 135·72 |
| 8 | 9 57 43·57 | 14 22 28·1 | 136·20 |
| 9 | 9 59 44·73 | 14 8 50·9 | 136·68 |
| 10 | 10 1 45·50 | 13 55 10·8 | 137·15 |
| 11 | 10 3 45·90 | 13 41 27·9 | 137·60 |
| 12 | 10 5 45·93 | 13 27 42·3 | 138·03 |
| 13 | 10 7 45·59 | 13 13 54·1 | 138·47 |
| 14 | 10 9 44·89 | 13 0 3·3 | 138·87 |
| 15 | 10 11 43·84 | 12 46 10·1 | 139·28 |
| 16 | 10 13 42·43 | 12 32 14·4 | 139·65 |
| 17 | 10 15 40·68 | 12 18 16·5 | 140·03 |
| 18 | 10 17 38·58 | 12 4 16·3 | 140·40 |
| 19 | 10 19 36·15 | 11 50 13·9 | 140·73 |
| 20 | 10 21 33·38 | 11 36 9·5 | 141·08 |
| 21 | 10 23 30·29 | 11 22 3·0 | 141·42 |
| 22 | 10 25 26·87 | 11 7 54·5 | 141·72 |
| 23 | 10 27 23·14 | N.10 53 44·2 | 142·02 |
| | *SUNDAY* 14. | | |
| 0 | 10 29 19·09 | N.10 39 32·1 | 142·32 |
| 1 | 10 31 14·74 | 10 25 18·2 | 142·58 |
| 2 | 10 33 10·08 | 10 11 2·7 | 142·85 |
| 3 | 10 35 5·13 | 9 56 45·6 | 143·12 |
| 4 | 10 36 59·88 | 9 42 26·9 | 143·35 |
| 5 | 10 38 54·34 | 9 28 6·8 | 143·60 |
| 6 | 10 40 48·53 | 9 13 45·2 | 143·80 |
| 7 | 10 42 42·43 | 8 59 22·4 | 144·03 |
| 8 | 10 44 36·07 | 8 44 58·2 | 144·22 |
| 9 | 10 46 29·43 | 8 30 32·9 | 144·42 |
| 10 | 10 48 22·54 | 8 16 6·4 | 144·60 |
| 11 | 10 50 15·38 | 8 1 38·8 | 144·77 |
| 12 | 10 52 7·98 | 7 47 10·2 | 144·92 |
| 13 | 10 54 0·33 | 7 32 40·7 | 145·08 |
| 14 | 10 55 52·43 | 7 18 10·2 | 145·22 |
| 15 | 10 57 44·30 | 7 3 38·9 | 145·35 |
| 16 | 10 59 35·94 | 6 49 6·8 | 145·47 |
| 17 | 11 1 27·35 | 6 34 34·0 | 145·57 |
| 18 | 11 3 18·54 | 6 20 0·6 | 145·68 |
| 19 | 11 5 9·51 | 6 5 26·5 | 145·77 |
| 20 | 11 7 0·27 | 5 50 51·9 | 145·85 |
| 21 | 11 8 50·82 | 5 36 16·8 | 145·93 |
| 22 | 11 10 41·17 | 5 21 41·2 | 145·98 |
| 23 | [illegible] | 5 7 5·3 | 146·05 |
| | | 52 29·0 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *MONDAY* 15. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 11 14 21·29 | N.4 52 29·0 | 146·10 |
| 1 | 11 16 11·07 | 4 37 52·4 | 146·12 |
| 2 | 11 18 0·66 | 4 23 15·7 | 146·17 |
| 3 | 11 19 50·08 | 4 8 38·7 | 146·18 |
| 4 | 11 21 39·33 | 3 54 1·6 | 146·18 |
| 5 | 11 23 28·42 | 3 39 24·5 | 146·20 |
| 6 | 11 25 17·34 | 3 24 47·3 | 146·20 |
| 7 | 11 27 6·11 | 3 10 10·1 | 146·18 |
| 8 | 11 28 54·72 | 2 55 33·0 | 146·15 |
| 9 | 11 30 43·19 | 2 40 56·1 | 146·13 |
| 10 | 11 32 31·52 | 2 26 19·3 | 146·08 |
| 11 | 11 34 19·71 | 2 11 42·8 | 146·05 |
| 12 | 11 36 7·77 | 1 57 6·5 | 146·00 |
| 13 | 11 37 55·71 | 1 42 30·5 | 145·92 |
| 14 | 11 39 43·52 | 1 27 55·0 | 145·87 |
| 15 | 11 41 31·22 | 1 13 19·8 | 145·78 |
| 16 | 11 43 18·82 | 0 58 45·1 | 145·72 |
| 17 | 11 45 6·30 | 0 44 10·8 | 145·60 |
| 18 | 11 46 53·68 | 0 29 37·2 | 145·52 |
| 19 | 11 48 40·97 | 0 15 4·1 | 145·40 |
| 20 | 11 50 28·17 | N.0 0 31·7 | 145·28 |
| 21 | 11 52 15·28 | S.0 14 0·0 | 145·18 |
| 22 | 11 54 2·31 | 0 28 31·1 | 145·03 |
| 23 | 11 55 49·26 | S.0 43 1·3 | 144·90 |
| | *TUESDAY* 16. | | |
| 0 | 11 57 36·14 | S.0 57 30·7 | 144·75 |
| 1 | 11 59 22·96 | 1 11 59·2 | 144·62 |
| 2 | 12 1 9·71 | 1 26 26·9 | 144·45 |
| 3 | 12 2 56·41 | 1 40 53·6 | 144·28 |
| 4 | 12 4 43·05 | 1 55 19·3 | 144·12 |
| 5 | 12 6 29·65 | 2 9 44·0 | 143·93 |
| 6 | 12 8 16·21 | 2 24 7·6 | 143·73 |
| 7 | 12 10 2·72 | 2 38 30·0 | 143·57 |
| 8 | 12 11 49·21 | 2 52 51·4 | 143·35 |
| 9 | 12 13 35·67 | 3 7 11·5 | 143·13 |
| 10 | 12 15 22·10 | 3 21 30·3 | 142·93 |
| 11 | 12 17 8·52 | 3 35 47·9 | 142·72 |
| 12 | 12 18 54·92 | 3 50 4·2 | 142·48 |
| 13 | 12 20 41·32 | 4 4 19·1 | 142·25 |
| 14 | 12 22 27·71 | 4 18 32·6 | 142·00 |
| 15 | 12 24 14·10 | 4 32 44·6 | 141·77 |
| 16 | 12 26 0·49 | 4 46 55·2 | 141·52 |
| 17 | 12 27 46·90 | 5 1 4·3 | 141·23 |
| 18 | 12 29 33·32 | 5 15 11·7 | 140·98 |
| 19 | 12 31 19·77 | 5 29 17·6 | 140·70 |
| 20 | 12 33 6·23 | 5 43 21·8 | 140·43 |
| 21 | 12 34 52·72 | 5 57 24·4 | 140·13 |
| 22 | 12 36 39·25 | 6 11 25·2 | 139·85 |
| 23 | 12 38 25·81 | 6 25 24·3 | 139·53 |
| 24 | 12 40 12·42 | S.6 39 21·5 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *WEDNESDAY* 17. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 12 40 12 ·42 | S. 6 39 21 ·5 | 139 ·23 |
| 1 | 12 41 59 ·07 | 6 53 16 ·9 | 138 ·93 |
| 2 | 12 43 45 ·78 | 7 7 10 ·5 | 138 ·60 |
| 3 | 12 45 32 ·54 | 7 21 2 ·1 | 138 ·27 |
| 4 | 12 47 19 ·37 | 7 34 51 ·7 | 137 ·93 |
| 5 | 12 49 6 ·25 | 7 48 39 ·4 | 137 ·62 |
| 6 | 12 50 53 ·21 | 8 2 25 ·0 | 137 ·25 |
| 7 | 12 52 40 ·25 | 8 16 8 ·5 | 136 ·90 |
| 8 | 12 54 27 ·36 | 8 29 49 ·9 | 136 ·53 |
| 9 | 12 56 14 ·55 | 8 43 29 ·1 | 136 ·17 |
| 10 | 12 58 1 ·83 | 8 57 6 ·1 | 135 ·80 |
| 11 | 12 59 49 ·21 | 9 10 40 ·9 | 135 ·42 |
| 12 | 13 1 36 ·68 | 9 24 13 ·4 | 135 ·02 |
| 13 | 13 3 24 ·25 | 9 37 43 ·5 | 134 ·63 |
| 14 | 13 5 11 ·93 | 9 51 11 ·3 | 134 ·23 |
| 15 | 13 6 59 ·71 | 10 4 36 ·7 | 133 ·82 |
| 16 | 13 8 47 ·61 | 10 17 59 ·6 | 133 ·42 |
| 17 | 13 10 35 ·63 | 10 31 20 ·1 | 132 ·98 |
| 18 | 13 12 23 ·77 | 10 44 38 ·0 | 132 ·55 |
| 19 | 13 14 12 ·04 | 10 57 53 ·3 | 132 ·13 |
| 20 | 13 16 0 ·44 | 11 11 6 ·1 | 131 ·68 |
| 21 | 13 17 48 ·98 | 11 24 16 ·2 | 131 ·23 |
| 22 | 13 19 37 ·66 | 11 37 23 ·6 | 130 ·77 |
| 23 | 13 21 26 ·48 | S. 11 50 28 ·2 | 130 ·32 |
| | *THURSDAY* 18. | | |
| 0 | 13 23 15 ·45 | S. 12 3 30 ·1 | 129 ·85 |
| 1 | 13 25 4 ·58 | 12 16 29 ·2 | 129 ·37 |
| 2 | 13 26 53 ·86 | 12 29 25 ·4 | 128 ·90 |
| 3 | 13 28 43 ·30 | 12 42 18 ·8 | 128 ·38 |
| 4 | 13 30 32 ·91 | 12 55 9 ·1 | 127 ·90 |
| 5 | 13 32 22 ·69 | 13 7 56 ·5 | 127 ·40 |
| 6 | 13 34 12 ·64 | 13 20 40 ·9 | 126 ·88 |
| 7 | 13 36 2 ·77 | 13 33 22 ·2 | 126 ·37 |
| 8 | 13 37 53 ·08 | 13 46 0 ·4 | 125 ·83 |
| 9 | 13 39 43 ·58 | 13 58 35 ·4 | 125 ·30 |
| 10 | 13 41 34 ·27 | 14 11 7 ·2 | 124 ·77 |
| 11 | 13 43 25 ·15 | 14 23 35 ·8 | 124 ·20 |
| 12 | 13 45 16 ·22 | 14 36 1 ·0 | 123 ·65 |
| 13 | 13 47 7 ·50 | 14 48 22 ·9 | 123 ·08 |
| 14 | 13 48 58 ·97 | 15 0 41 ·4 | 122 ·52 |
| 15 | 13 50 50 ·66 | 15 12 56 ·5 | 121 ·92 |
| 16 | 13 52 42 ·56 | 15 25 8 ·0 | 121 ·35 |
| 17 | 13 54 34 ·68 | 15 37 16 ·1 | 120 ·75 |
| 18 | 13 56 27 ·02 | 15 49 20 ·6 | 120 ·15 |
| 19 | 13 58 19 ·58 | 16 1 21 ·5 | 119 ·53 |
| 20 | 14 0 12 ·37 | 16 13 18 ·7 | 118 ·92 |
| 21 | 14 2 5 ·39 | 16 25 12 ·2 | 118 ·30 |
| 22 | 14 3 58 ·65 | 16 37 2 ·0 | 117 ·65 |
| 23 | 14 5 52 ·15 | 16 48 47 ·9 | 117 ·02 |
| 24 | 14 7 45 ·89 | S. 17 0 30 ·0 | |

| Hour. | Right Ascension. | Declination. |
|---|---|---|
| | *FRIDAY* 19. | |
| | h m s | ° ′ ″ |
| 0 | 14 7 45 ·89 | S. 17 0 30 ·0 |
| 1 | 14 9 39 ·88 | 17 12 8 ·2 |
| 2 | 14 11 34 ·11 | 17 23 42 ·5 |
| 3 | 14 13 28 ·60 | 17 35 12 ·7 |
| 4 | 14 15 23 ·35 | 17 46 39 ·0 |
| 5 | 14 17 18 ·35 | 17 58 1 ·1 |
| 6 | 14 19 13 ·62 | 18 9 19 ·0 |
| 7 | 14 21 9 ·16 | 18 20 32 ·8 |
| 8 | 14 23 4 ·96 | 18 31 42 ·3 |
| 9 | 14 25 1 ·04 | 18 42 47 ·5 |
| 10 | 14 26 57 ·39 | 18 53 48 ·4 |
| 11 | 14 28 54 ·02 | 19 4 44 ·8 |
| 12 | 14 30 50 ·93 | 19 15 36 ·8 |
| 13 | 14 32 48 ·12 | 19 26 24 ·3 |
| 14 | 14 34 45 ·60 | 19 37 7 ·1 |
| 15 | 14 36 43 ·37 | 19 47 45 ·4 |
| 16 | 14 38 41 ·43 | 19 58 19 ·0 |
| 17 | 14 40 39 ·79 | 20 8 47 ·9 |
| 18 | 14 42 38 ·44 | 20 19 11 ·9 |
| 19 | 14 44 37 ·39 | 20 29 31 ·2 |
| 20 | 14 46 36 ·65 | 20 39 45 ·5 |
| 21 | 14 48 36 ·21 | 20 49 54 ·9 |
| 22 | 14 50 36 ·08 | 20 59 59 ·3 |
| 23 | 14 52 36 ·25 | S. 21 9 58 ·7 |
| | *SATURDAY* 20. | |
| 0 | 14 54 36 ·74 | S. 21 19 52 ·9 |
| 1 | 14 56 37 ·54 | 21 29 42 ·0 |
| 2 | 14 58 38 ·66 | 21 39 25 ·8 |
| 3 | 15 0 40 ·09 | 21 49 4 ·4 |
| 4 | 15 2 41 ·85 | 21 58 37 ·6 |
| 5 | 15 4 43 ·93 | 22 8 5 ·4 |
| 6 | 15 6 46 ·32 | 22 17 27 ·7 |
| 7 | 15 8 49 ·05 | 22 26 44 ·5 |
| 8 | 15 10 52 ·10 | 22 35 55 ·8 |
| 9 | 15 12 55 ·48 | 22 45 1 ·4 |
| 10 | 15 14 59 ·18 | 22 54 1 ·3 |
| 11 | 15 17 3 ·22 | 23 2 55 ·4 |
| 12 | 15 19 7 ·59 | 23 11 43 ·7 |
| 13 | 15 21 12 ·29 | 23 20 26 ·1 |
| 14 | 15 23 17 ·33 | 23 29 2 ·6 |
| 15 | 15 25 22 ·70 | 23 37 33 ·0 |
| 16 | 15 27 28 ·41 | 23 45 57 ·5 |
| 17 | 15 29 34 ·45 | 23 54 15 ·7 |
| 18 | 15 31 40 ·83 | 24 2 27 ·8 |
| 19 | 15 33 47 ·55 | 24 10 33 ·7 |
| 20 | 15 35 54 ·60 | 24 18 33 ·3 |
| 21 | 15 38 2 ·00 | 24 26 26 ·5 |
| 22 | 15 40 9 ·73 | 24 34 13 ·3 |
| 23 | 15 42 17 ·80 | 24 41 53 ·5 |
| 24 | 15 44 26 ·20 | S. 24 49 27 ·3 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| r. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SUNDAY* 21. | | |
| | h m s | ° ′ ″ | ″ |
| | 15 44 26·20 | S. 24 49 27·3 | 74·53 |
| | 15 46 34·95 | 24 56 54·5 | 73·42 |
| | 15 48 44·03 | 25 4 15·0 | 72·30 |
| | 15 50 53·45 | 25 11 28·8 | 71·17 |
| | 15 53 3·20 | 25 18 35·8 | 70·02 |
| | 15 55 13·29 | 25 25 35·9 | 68·88 |
| | 15 57 23·72 | 25 32 29·2 | 67·70 |
| | 15 59 34·48 | 25 39 15·4 | 66·53 |
| | 16 1 45·57 | 25 45 54·6 | 65·35 |
| | 16 3 57·00 | 25 52 26·7 | 64·17 |
| | 16 6 8·75 | 25 58 51·7 | 62·95 |
| | 16 8 20·84 | 26 5 9·4 | 61·73 |
| | 16 10 33·25 | 26 11 19·8 | 60·52 |
| | 16 12 45·99 | 26 17 22·9 | 59·27 |
| | 16 14 59·06 | 26 23 18·5 | 58·03 |
| | 16 17 12·44 | 26 29 6·7 | 56·77 |
| | 16 19 26·15 | 26 34 47·3 | 55·52 |
| | 16 21 40·18 | 26 40 20·4 | 54·23 |
| | 16 23 54·52 | 26 45 45·8 | 52·95 |
| | 16 26 9·17 | 26 51 3·5 | 51·67 |
| | 16 28 24·14 | 26 56 13·5 | 50·35 |
| | 16 30 39·41 | 27 1 15·6 | 49·05 |
| | 16 32 54·98 | 27 6 9·9 | 47·72 |
| | 16 35 10·86 | S. 27 10 56·2 | 46·38 |
| | *MONDAY* 22. | | |
| | 16 37 27·04 | S. 27 15 34·5 | 45·05 |
| | 16 39 43·52 | 27 20 4·8 | 43·70 |
| | 16 42 0·29 | 27 24 27·0 | 42·33 |
| | 16 44 17·35 | 27 28 41·0 | 40·97 |
| | 16 46 34·69 | 27 32 46·8 | 39·60 |
| | 16 48 52·31 | 27 36 44·4 | 38·20 |
| | 16 51 10·22 | 27 40 33·6 | 36·82 |
| | 16 53 28·39 | 27 44 14·5 | 35·40 |
| | 16 55 46·84 | 27 47 46·9 | 34·00 |
| | 16 58 5·55 | 27 51 10·9 | 32·57 |
| | 17 0 24·52 | 27 54 26·3 | 31·15 |
| | 17 2 43·74 | 27 57 33·2 | 29·70 |
| | 17 5 3·22 | 28 0 31·4 | 28·27 |
| | 17 7 22·95 | 28 3 21·0 | 26·80 |
| | 17 9 42·91 | 28 6 1·8 | 25·33 |
| | 17 12 3·11 | 28 8 33·8 | 23·88 |
| | 17 14 23·54 | 28 10 57·1 | 22·40 |
| | 17 16 44·20 | 28 13 11·5 | 20·90 |
| | 17 19 5·08 | 28 15 16·9 | 19·42 |
| | 17 21 26·18 | 28 17 13·4 | 17·93 |
| | 17 23 47·49 | 28 19 1·0 | 16·42 |
| | 17 26 8·99 | 28 20 39·5 | 14·90 |
| | 17 28 30·70 | 28 22 8·9 | 13·38 |
| | 17 30 52·60 | 28 23 29·2 | 11·87 |
| | 17 33 14·69 | S. 28 24 40·4 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 23. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 17 33 14·69 | S. 28 24 40·4 | 10·33 |
| 1 | 17 35 36·96 | 28 25 42·4 | 8·78 |
| 2 | 17 37 59·41 | 28 26 35·1 | 7·25 |
| 3 | 17 40 22·02 | 28 27 18·6 | 5·70 |
| 4 | 17 42 44·80 | 28 27 52·8 | 4·15 |
| 5 | 17 45 7·73 | 28 28 17·7 | 2·60 |
| 6 | 17 47 30·81 | 28 28 33·3 | 1·03 |
| 7 | 17 49 54·04 | 28 28 39·5 | 0·55 |
| 8 | 17 52 17·40 | 28 28 36·2 | 2·10 |
| 9 | 17 54 40·89 | 28 28 23·6 | 3·68 |
| 10 | 17 57 4·51 | 28 28 1·5 | 5·27 |
| 11 | 17 59 28·24 | 28 27 29·9 | 6·85 |
| 12 | 18 1 52·09 | 28 26 48·8 | 8·43 |
| 13 | 18 4 16·04 | 28 25 58·2 | 10·02 |
| 14 | 18 6 40·08 | 28 24 58·1 | 11·62 |
| 15 | 18 9 4·22 | 28 23 48·4 | 13·22 |
| 16 | 18 11 28·43 | 28 22 29·1 | 14·80 |
| 17 | 18 13 52·72 | 28 21 0·3 | 16·42 |
| 18 | 18 16 17·08 | 28 19 21·8 | 18·00 |
| 19 | 18 18 41·50 | 28 17 33·8 | 19·62 |
| 20 | 18 21 5·98 | 28 15 36·1 | 21·23 |
| 21 | 18 23 30·50 | 28 13 28·7 | 22·82 |
| 22 | 18 25 55·07 | 28 11 11·8 | 24·43 |
| 23 | 18 28 19·67 | S. 28 8 45·2 | 26·05 |
| | *WEDNESDAY* 24. | | |
| 0 | 18 30 44·29 | S. 28 6 8·9 | 27·65 |
| 1 | 18 33 8·94 | 28 3 23·0 | 29·27 |
| 2 | 18 35 33·60 | 28 0 27·4 | 30·88 |
| 3 | 18 37 58·26 | 27 57 22·1 | 32·48 |
| 4 | 18 40 22·92 | 27 54 7·2 | 34·10 |
| 5 | 18 42 47·58 | 27 50 42·6 | 35·70 |
| 6 | 18 45 12·22 | 27 47 8·4 | 37·30 |
| 7 | 18 47 36·84 | 27 43 24·6 | 38·92 |
| 8 | 18 50 1·44 | 27 39 31·1 | 40·52 |
| 9 | 18 52 26·00 | 27 35 28·0 | 42·13 |
| 10 | 18 54 50·51 | 27 31 15·2 | 43·72 |
| 11 | 18 57 14·98 | 27 26 52·9 | 45·32 |
| 12 | 18 59 39·40 | 27 22 21·0 | 46·92 |
| 13 | 19 2 3·75 | 27 17 39·5 | 48·50 |
| 14 | 19 4 28·04 | 27 12 48·5 | 50·10 |
| 15 | 19 6 52·25 | 27 7 47·9 | 51·68 |
| 16 | 19 9 16·38 | 27 2 37·8 | 53·25 |
| 17 | 19 11 40·43 | 26 57 18·3 | 54·85 |
| 18 | 19 14 4·39 | 26 51 49·2 | 56·42 |
| 19 | 19 16 28·25 | 26 46 10·7 | 57·98 |
| 20 | 19 18 52·00 | 26 40 22·8 | 59·55 |
| 21 | 19 21 15·65 | 26 34 25·5 | 61·10 |
| 22 | 19 23 39·18 | 26 28 18·9 | 62·67 |
| 23 | 19 26 2·59 | 26 22 2·9 | 64·22 |
| 24 | 19 28 25·88 | S. 26 15 37·6 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *THURSDAY* 25. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 19 28 25 ·88 | S. 26 15 37 ·6 | 65 ·77 |
| 1 | 19 30 49 ·03 | 26 9 3 ·0 | 67 ·30 |
| 2 | 19 33 12 ·05 | 26 2 19 ·2 | 68 ·83 |
| 3 | 19 35 34 ·93 | 25 55 26 ·2 | 70 ·35 |
| 4 | 19 37 57 ·66 | 25 48 24 ·1 | 71 ·88 |
| 5 | 19 40 20 ·23 | 25 41 12 ·8 | 73 ·40 |
| 6 | 19 42 42 ·65 | 25 33 52 ·4 | 74 ·90 |
| 7 | 19 45 4 ·91 | 25 26 23 ·0 | 76 ·38 |
| 8 | 19 47 27 ·00 | 25 18 44 ·7 | 77 ·90 |
| 9 | 19 49 48 ·92 | 25 10 57 ·3 | 79 ·37 |
| 10 | 19 52 10 ·67 | 25 3 1 ·1 | 80 ·85 |
| 11 | 19 54 32 ·24 | 24 54 56 ·0 | 82 ·32 |
| 12 | 19 56 53 ·62 | 24 46 42 ·1 | 83 ·78 |
| 13 | 19 59 14 ·81 | 24 38 19 ·4 | 85 ·22 |
| 14 | 20 1 35 ·82 | 24 29 48 ·1 | 86 ·67 |
| 15 | 20 3 56 ·63 | 24 21 8 ·1 | 88 ·10 |
| 16 | 20 6 17 ·25 | 24 12 19 ·5 | 89 ·53 |
| 17 | 20 8 37 ·66 | 24 3 22 ·3 | 90 ·93 |
| 18 | 20 10 57 ·87 | 23 54 16 ·7 | 92 ·35 |
| 19 | 20 13 17 ·87 | 23 45 2 ·6 | 93 ·75 |
| 20 | 20 15 37 ·66 | 23 35 40 ·1 | 95 ·13 |
| 21 | 20 17 57 ·24 | 23 26 9 ·3 | 96 ·50 |
| 22 | 20 20 16 ·60 | 23 16 30 ·3 | 97 ·88 |
| 23 | 20 22 35 ·75 | S. 23 6 43 ·0 | 99 ·23 |
| | *FRIDAY* 26. | | |
| 0 | 20 24 54 ·67 | S. 22 56 47 ·6 | 100 ·58 |
| 1 | 20 27 13 ·37 | 22 46 44 ·1 | 101 ·92 |
| 2 | 20 29 31 ·85 | 22 36 32 ·6 | 103 ·23 |
| 3 | 20 31 50 ·10 | 22 26 13 ·2 | 104 ·57 |
| 4 | 20 34 8 ·13 | 22 15 45 ·8 | 105 ·85 |
| 5 | 20 36 25 ·92 | 22 5 10 ·7 | 107 ·15 |
| 6 | 20 38 43 ·48 | 21 54 27 ·8 | 108 ·43 |
| 7 | 20 41 0 ·80 | 21 43 37 ·2 | 109 ·70 |
| 8 | 20 43 17 ·90 | 21 32 39 ·0 | 110 ·97 |
| 9 | 20 45 34 ·75 | 21 21 33 ·2 | 112 ·22 |
| 10 | 20 47 51 ·37 | 21 10 19 ·9 | 113 ·43 |
| 11 | 20 50 7 ·76 | 20 58 59 ·3 | 114 ·67 |
| 12 | 20 52 23 ·90 | 20 47 31 ·3 | 115 ·87 |
| 13 | 20 54 39 ·80 | 20 35 56 ·1 | 117 ·08 |
| 14 | 20 56 55 ·47 | 20 24 13 ·6 | 118 ·25 |
| 15 | 20 59 10 ·89 | 20 12 24 ·1 | 119 ·43 |
| 16 | 21 1 26 ·08 | 20 0 27 ·5 | 120 ·60 |
| 17 | 21 3 41 ·02 | 19 48 23 ·9 | 121 ·75 |
| 18 | 21 5 55 ·73 | 19 36 13 ·4 | 122 ·88 |
| 19 | 21 8 10 ·19 | 19 23 56 ·1 | 124 ·00 |
| 20 | 21 10 24 ·42 | 19 11 32 ·1 | 125 ·12 |
| 21 | 21 12 38 ·41 | 18 59 1 ·4 | 126 ·22 |
| 22 | 21 14 52 ·16 | 18 46 24 ·1 | 127 ·30 |
| 23 | 21 17 5 ·67 | 18 33 40 ·3 | 128 ·38 |
| 24 | 21 19 18 ·95 | S. 18 20 50 ·0 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SATURDAY* 27. | | |
| | h m s | ° ′ ″ | |
| 0 | 21 19 18 ·95 | S. 18 20 50 ·0 | [illegible] |
| 1 | 21 21 31 ·99 | 18 7 53 ·4 | [illegible] |
| 2 | 21 23 44 ·80 | 17 54 50 ·5 | [illegible] |
| 3 | 21 25 57 ·37 | 17 41 41 ·4 | [illegible] |
| 4 | 21 28 9 ·71 | 17 28 26 ·2 | [illegible] |
| 5 | 21 30 21 ·82 | 17 15 4 ·9 | [illegible] |
| 6 | 21 32 33 ·70 | 17 1 37 ·7 | [illegible] |
| 7 | 21 34 45 ·36 | 16 48 4 ·7 | [illegible] |
| 8 | 21 36 56 ·79 | 16 34 25 ·8 | [illegible] |
| 9 | 21 39 7 ·99 | 16 20 41 ·3 | [illegible] |
| 10 | 21 41 18 ·98 | 16 6 51 ·1 | [illegible] |
| 11 | 21 43 29 ·74 | 15 52 55 ·4 | [illegible] |
| 12 | 21 45 40 ·28 | 15 38 54 ·2 | [illegible] |
| 13 | 21 47 50 ·61 | 15 24 47 ·7 | [illegible] |
| 14 | 21 50 0 ·72 | 15 10 35 ·9 | [illegible] |
| 15 | 21 52 10 ·62 | 14 56 18 ·9 | [illegible] |
| 16 | 21 54 20 ·31 | 14 41 56 ·7 | [illegible] |
| 17 | 21 56 29 ·80 | 14 27 29 ·5 | [illegible] |
| 18 | 21 58 39 ·08 | 14 12 57 ·4 | [illegible] |
| 19 | 22 0 48 ·16 | 13 58 20 ·4 | [illegible] |
| 20 | 22 2 57 ·04 | 13 43 38 ·6 | [illegible] |
| 21 | 22 5 5 ·72 | 13 28 52 ·1 | [illegible] |
| 22 | 22 7 14 ·22 | 13 14 1 ·0 | [illegible] |
| 23 | 22 9 22 ·52 | S. 12 59 5 ·3 | [illegible] |
| | *SUNDAY* 28. | | |
| 0 | 22 11 30 ·64 | S. 12 44 5 ·2 | [illegible] |
| 1 | 22 13 38 ·58 | 12 29 0 ·7 | [illegible] |
| 2 | 22 15 46 ·34 | 12 13 51 ·9 | [illegible] |
| 3 | 22 17 53 ·93 | 11 58 38 ·9 | [illegible] |
| 4 | 22 20 1 ·34 | 11 43 21 ·9 | [illegible] |
| 5 | 22 22 8 ·58 | 11 28 0 ·8 | [illegible] |
| 6 | 22 24 15 ·66 | 11 12 35 ·7 | [illegible] |
| 7 | 22 26 22 ·58 | 10 57 6 ·9 | [illegible] |
| 8 | 22 28 29 ·33 | 10 41 34 ·2 | [illegible] |
| 9 | 22 30 35 ·94 | 10 25 57 ·9 | [illegible] |
| 10 | 22 32 42 ·39 | 10 10 18 ·0 | [illegible] |
| 11 | 22 34 48 ·70 | 9 54 34 ·7 | [illegible] |
| 12 | 22 36 54 ·86 | 9 38 47 ·9 | [illegible] |
| 13 | 22 39 0 ·89 | 9 22 57 ·8 | [illegible] |
| 14 | 22 41 6 ·78 | 9 7 4 ·5 | [illegible] |
| 15 | 22 43 12 ·54 | 8 51 8 ·1 | [illegible] |
| 16 | 22 45 18 ·18 | 8 35 8 ·6 | [illegible] |
| 17 | 22 47 23 ·69 | 8 19 6 ·1 | [illegible] |
| 18 | 22 49 29 ·08 | 8 3 0 ·7 | [illegible] |
| 19 | 22 51 34 ·36 | 7 46 52 ·6 | [illegible] |
| 20 | 22 53 39 ·54 | 7 30 41 ·[illegible] | |
| 21 | 22 55 44 ·61 | 7 14 28 | |
| 22 | 22 57 49 ·58 | | |
| 23 | 22 59 54 ·45 | | |
| 24 | 23 1 59 | | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *MONDAY* 29. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 23 1 59·23 | S. 6 25 32·7 | 163·87 |
| 1 | 23 4 3·93 | 6 9 9·5 | 164·23 |
| 2 | 23 6 8·55 | 5 52 44·1 | 164·58 |
| 3 | 23 8 13·09 | 5 36 16·6 | 164·93 |
| 4 | 23 10 17·55 | 5 19 47·0 | 165·23 |
| 5 | 23 12 21·96 | 5 3 15·6 | 165·55 |
| 6 | 23 14 26·29 | 4 46 42·3 | 165·85 |
| 7 | 23 16 30·57 | 4 30 7·2 | 166·12 |
| 8 | 23 18 34·80 | 4 13 30·5 | 166·40 |
| 9 | 23 20 38·98 | 3 56 52·1 | 166·63 |
| 10 | 23 22 43·12 | 3 40 12·3 | 166·87 |
| 11 | 23 24 47·22 | 3 23 31·1 | 167·08 |
| 12 | 23 26 51·28 | 3 6 48·6 | 167·28 |
| 13 | 23 28 55·32 | 2 50 4·9 | 167·48 |
| 14 | 23 30 59·33 | 2 33 20·0 | 167·65 |
| 15 | 23 33 3·33 | 2 16 34·1 | 167·82 |
| 16 | 23 35 7·31 | 1 59 47·2 | 167·95 |
| 17 | 23 37 11·29 | 1 42 59·5 | 168·08 |
| 18 | 23 39 15·26 | 1 26 11·0 | 168·22 |
| 19 | 23 41 19·24 | 1 9 21·7 | 168·30 |
| 20 | 23 43 23·22 | 0 52 31·9 | 168·40 |
| 21 | 23 45 27·21 | 0 35 41·5 | 168·47 |
| 22 | 23 47 31·23 | 0 18 50·7 | 168·53 |
| 23 | 23 49 35·26 | S. 0 1 59·5 | 168·57 |
| | *TUESDAY* 30. | | |
| 0 | 23 51 39·33 | N. 0 14 51·9 | 168·60 |
| 1 | 23 53 43·43 | 0 31 43·5 | 168·62 |
| 2 | 23 55 47·57 | 0 48 35·2 | 168·62 |
| 3 | 23 57 51·75 | 1 5 26·9 | 168·60 |
| 4 | 23 59 55·98 | 1 22 18·5 | 168·57 |
| 5 | 0 2 0·27 | 1 39 9·9 | 168·53 |
| 6 | 0 4 4·62 | 1 56 1·1 | 168·47 |
| 7 | 0 6 9·03 | 2 12 51·9 | 168·38 |
| 8 | 0 8 13·51 | 2 29 42·2 | 168·28 |
| 9 | 0 10 18·06 | 2 46 31·9 | 168·20 |
| 10 | 0 12 22·70 | 3 3 21·1 | 168·07 |
| 11 | 0 14 27·42 | 3 20 9·5 | 167·93 |
| 12 | 0 16 32·24 | 3 36 57·1 | 167·75 |
| 13 | 0 18 37·15 | 3 53 43·8 | 167·60 |
| 14 | 0 20 42·16 | 4 10 29·4 | 167·43 |
| 15 | 0 22 47·29 | 4 27 14·0 | 167·23 |
| 16 | 0 24 52·52 | 4 43 57·4 | 167·03 |
| 17 | 0 26 57·87 | 5 0 39·6 | 166·80 |
| 18 | 0 29 3·34 | 5 17 20·4 | 166·55 |
| 19 | 0 31 8·94 | 5 33 59·7 | 166·30 |
| 20 | 0 33 14·68 | 5 50 37·5 | 166·03 |
| [illegible] | [illegible]55 | 6 7 13·7 | 165·75 |
| | | 6 23 48·2 | 165·45 |
| | | [illegible] 20·9 | 165·13 |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *WEDNESDAY* 31. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 0 41 39·06 | N. 6 56 51·7 | 164·80 |
| 1 | 0 43 45·55 | 7 13 20·5 | 164·47 |
| 2 | 0 45 52·20 | 7 29 47·3 | 164·10 |
| 3 | 0 47 59·03 | 7 46 11·9 | 163·73 |
| 4 | 0 50 6·03 | 8 2 34·3 | 163·33 |
| 5 | 0 52 13·21 | 8 18 54·3 | 162·92 |
| 6 | 0 54 20·58 | 8 35 11·8 | 162·50 |
| 7 | 0 56 28·15 | 8 51 26·8 | 162·07 |
| 8 | 0 58 35·90 | 9 7 39·2 | 161·62 |
| 9 | 1 0 43·86 | 9 23 48·9 | 161·13 |
| 10 | 1 2 52·02 | 9 39 55·7 | 160·65 |
| 11 | 1 5 0·40 | 9 55 59·6 | 160·15 |
| 12 | 1 7 8·99 | 10 12 0·5 | 159·63 |
| 13 | 1 9 17·80 | 10 27 58·3 | 159·10 |
| 14 | 1 11 26·83 | 10 43 52·9 | 158·55 |
| 15 | 1 13 36·09 | 10 59 44·2 | 157·98 |
| 16 | 1 15 45·59 | 11 15 32·1 | 157·40 |
| 17 | 1 17 55·33 | 11 31 16·5 | 156·80 |
| 18 | 1 20 5·32 | 11 46 57·3 | 156·20 |
| 19 | 1 22 15·55 | 12 2 34·5 | 155·57 |
| 20 | 1 24 26·04 | 12 18 7·9 | 154·93 |
| 21 | 1 26 36·78 | 12 33 37·5 | 154·27 |
| 22 | 1 28 47·79 | 12 49 3·1 | 153·58 |
| 23 | 1 30 59·07 | N. 13 4 24·6 | 152·90 |
| | *THURSDAY, AUG.* 1. | | |
| 0 | 1 33 10·62 | N. 13 19 42·0 | |

### PHASES OF THE MOON.

| | d h m |
|---|---|
| ☾ *Last Quarter* - - | 3 17 14·2 |
| ● New Moon - - - | 10 11 1·4 |
| ☽ *First Quarter* - - | 18 3 1·8 |
| ○ Full Moon - - - | 25 23 25·9 |

| | d h |
|---|---|
| ☾ Perigee - - - - - - - | 6 17 |
| ☾ Apogee - - - - - - - | 18 18 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P. L. of diff. | III h. | P. L. of diff. | VI h. | P. L. of diff. | IX h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 1 | Saturn | W. | 89 8 37 | 2465 | 90 50 39 | 2458 | 92 32 51 | 2450 | 94 15 14 | 2442 |
| | Antares | W. | 86 17 0 | 2452 | 87 59 21 | 2445 | 89 41 53 | 2437 | 91 24 35 | 2430 |
| | α Arietis | E. | 62 14 21 | 2485 | 60 32 47 | 2479 | 58 51 4 | 2472 | 57 9 12 | 2467 |
| | Aldebaran | E. | 93 30 19 | 2525 | 91 49 40 | 2517 | 90 8 51 | 2509 | 88 27 51 | 2502 |
| | Sun | E. | 124 59 16 | 2789 | 123 24 34 | 2781 | 121 49 41 | 2772 | 120 14 36 | 2763 |
| 2 | Saturn | W. | 102 49 35 | 2410 | 104 32 56 | 2403 | 106 16 26 | 2398 | 108 0 4 | 2391 |
| | α Aquilæ | W. | 54 23 9 | 3665 | 55 40 33 | 3607 | 56 59 0 | 3552 | 58 18 27 | 3502 |
| | α Arietis | E. | 48 37 57 | 2441 | 46 55 21 | 2436 | 45 12 38 | 2433 | 43 29 51 | 2430 |
| | Aldebaran | E. | 80 0 26 | 2470 | 78 18 30 | 2464 | 76 36 26 | 2458 | 74 54 13 | 2453 |
| | Sun | E. | 112 16 27 | 2722 | 110 40 16 | 2715 | 109 3 56 | 2707 | 107 27 25 | 2699 |
| 3 | α Aquilæ | W. | 65 8 24 | 3301 | 66 32 34 | 3270 | 67 57 21 | 3241 | 69 22 42 | 3213 |
| | α Arietis | E. | 34 55 0 | 2424 | 33 11 59 | 2425 | 31 29 0 | 2428 | 29 46 5 | 2433 |
| | Aldebaran | E. | 66 21 21 | 2429 | 64 38 27 | 2424 | 62 55 27 | 2421 | 61 12 23 | 2418 |
| | Sun | E. | 99 22 20 | 2663 | 97 44 50 | 2655 | 96 7 10 | 2649 | 94 29 21 | 2641 |
| 4 | α Aquilæ | W. | 76 36 50 | 3106 | 78 4 52 | 3090 | 79 33 14 | 3075 | 81 1 54 | 3061 |
| | Fomalhaut | W. | 48 53 14 | 2758 | 50 28 37 | 2729 | 52 4 38 | 2703 | 53 41 14 | 2679 |
| | α Pegasi | W. | 29 11 18 | 3516 | 30 31 25 | 3386 | 31 53 57 | 3277 | 33 18 36 | 3181 |
| | Aldebaran | E. | 52 36 12 | 2411 | 50 52 53 | 2412 | 49 9 36 | 2413 | 47 26 20 | 2416 |
| | Sun | E. | 86 18 1 | 2610 | 84 39 19 | 2604 | 83 0 29 | 2598 | 81 21 31 | 2593 |
| 5 | α Aquilæ | W. | 88 28 38 | 3019 | 89 58 27 | 3014 | 91 28 22 | 3010 | 92 58 22 | 3016 |
| | Fomalhaut | W. | 61 51 30 | 2585 | 63 30 45 | 2570 | 65 10 21 | 2557 | 66 50 15 | 2545 |
| | α Pegasi | W. | 40 46 17 | 2855 | 42 19 34 | 2811 | 43 53 48 | 2771 | 45 28 54 | 2734 |
| | Aldebaran | E. | 38 51 30 | 2449 | 37 9 5 | 2462 | 35 26 58 | 2477 | 33 45 13 | 2493 |
| | Sun | E. | 73 4 53 | 2567 | 71 25 13 | 2563 | 69 45 27 | 2559 | 68 5 35 | 2556 |
| 6 | Fomalhaut | W. | 75 13 28 | 2500 | 76 54 42 | 2493 | 78 36 5 | 2488 | 80 17 35 | 2483 |
| | α Pegasi | W. | 53 34 42 | 2605 | 55 13 30 | 2587 | 56 52 43 | 2571 | 58 32 18 | 2555 |
| | Aldebaran | E. | 25 25 29 | 2681 | 23 48 24 | 2750 | 22 12 50 | 2835 | 20 39 8 | 2946 |
| | Sun | E. | 59 45 7 | 2540 | 58 4 50 | 2539 | 56 24 31 | 2537 | 54 44 10 | 2536 |
| 7 | Fomalhaut | W. | 88 46 20 | 2472 | 90 28 12 | 2474 | 92 10 2 | 2475 | 93 51 51 | 2477 |
| | α Pegasi | W. | 66 54 49 | 2502 | 68 36 0 | 2495 | 70 17 20 | 2489 | 71 58 48 | 2483 |
| | α Arietis | W. | 23 24 6 | 2370 | 25 8 24 | 2351 | 26 53 9 | 2335 | 28 38 17 | 2323 |
| | Sun | E. | 46 22 10 | 2538 | 44 41 49 | 2539 | 43 1 30 | 2541 | 41 21 14 | 2544 |
| 8 | α Pegasi | W. | 80 27 17 | 2477 | 82 9 3 | 2478 | 83 50 47 | 2480 | 85 32 28 | 2483 |
| | α Arietis | W. | 37 27 17 | 2293 | 39 13 27 | 2292 | 40 59 38 | 2291 | 42 45 50 | 2291 |
| 12 | Mars | E. | 59 3 12 | 2711 | 57 26 46 | 2726 | 55 50 40 | 2741 | 54 14 55 | 2756 |
| | Jupiter | E. | 61 39 39 | 2572 | 60 0 5 | 2586 | 58 20 51 | 2601 | 56 41 58 | 2616 |
| | Spica ♍ | E. | 72 44 58 | 2530 | 71 4 26 | 2544 | 69 24 14 | 2558 | 67 44 22 | 2573 |
| | Saturn | E. | 115 5 27 | 2553 | 113 25 27 | 2567 | 111 45 47 | 2580 | 110 6 25 | 2594 |
| 13 | Sun | W. | 31 57 47 | 3020 | 33 27 35 | 3034 | 34 57 6 | 3046 | 36 26 22 | 3060 |
| | Mars | E. | 46 21 16 | 2835 | 44 47 34 | 2852 | 43 14 13 | 2867 | 41 41 12 | 2883 |
| | Jupiter | E. | 48 32 44 | 2694 | 46 55 56 | 2710 | 45 19 30 | 2726 | 43 43 24 | 274[illegible] |
| | Spica ♍ | E. | 59 30 5 | 2648 | 57 52 15 | 2662 | 56 14 44 | 2677 | 54 37 33 | 269[illegible] |
| | Saturn | E. | 101 54 22 | 2666 | 100 16 56 | 2681 | 98 39 50 | 2695 | 97 3 3 | 27[illegible] |
| 14 | Sun | W. | 43 48 29 | 3129 | 45 16 3 | 3143 | 46 43 21 | 3157 | 48 10 22 | 317[illegible] |
| | Mars | E. | 34 1 13 | 2962 | 32 30 13 | 2977 | 30 59 32 | 2993 | 29 29 11 | 30[illegible] |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Midnight. | P.L. of diff. | XV h. | P.L. of diff. | XVIII h. | P.L. of diff. | XXI h. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 1 | Saturn | W. | 95 57 47 | 2436 | 97 40 30 | 2430 | 99 23 22 | 2423 | 101 6 24 | 2417 |
| | Antares | W. | 93 7 27 | 2422 | 94 50 30 | 2415 | 96 33 43 | 2408 | 98 17 6 | 2401 |
| | α Arietis | E. | 55 27 12 | 2461 | 53 45 4 | 2456 | 52 2 49 | 2450 | 50 20 26 | 2446 |
| | Aldebaran | E. | 86 46 41 | 2495 | 85 5 21 | 2489 | 83 23 52 | 2482 | 81 42 14 | 2475 |
| | Sun | E. | 118 39 20 | 2755 | 117 3 53 | 2747 | 115 28 15 | 2738 | 113 52 26 | 2731 |
| 2 | Saturn | W. | 109 43 51 | 2385 | 111 27 47 | 2380 | 113 11 51 | 2374 | 114 56 3 | 2369 |
| | α Aquilæ | W. | 59 38 49 | 3455 | 61 0 3 | 3413 | 62 22 5 | 3372 | 63 44 53 | 3335 |
| | α Arietis | E. | 41 46 59 | 2427 | 40 4 2 | 2425 | 38 21 3 | 2424 | 36 38 2 | 2423 |
| | Aldebaran | E. | 73 11 53 | 2447 | 71 29 25 | 2442 | 69 46 50 | 2438 | 68 4 9 | 2433 |
| | Sun | E. | 105 50 44 | 2692 | 104 13 53 | 2684 | 102 36 52 | 2677 | 100 59 41 | 2669 |
| 3 | α Aquilæ | W. | 70 48 36 | 3188 | 72 15 0 | 3164 | 73 41 52 | 3143 | 75 9 9 | 3124 |
| | α Arietis | E. | 28 3 18 | 2441 | 26 20 42 | 2452 | 24 38 21 | 2467 | 22 56 21 | 2486 |
| | Aldebaran | E. | 59 29 14 | 2416 | 57 46 2 | 2414 | 56 2 47 | 2412 | 54 19 30 | 2412 |
| | Sun | E. | 92 51 22 | 2635 | 91 13 15 | 2629 | 89 34 59 | 2622 | 87 56 34 | 2616 |
| 4 | α Aquilæ | W. | 82 30 50 | 3051 | 84 0 0 | 3040 | 85 29 23 | 3032 | 86 58 56 | 3025 |
| | Fomalhaut | W. | 55 18 22 | 2657 | 56 56 0 | 2637 | 58 34 5 | 2618 | 60 12 36 | 2601 |
| | α Pegasi | W. | 34 45 8 | 3098 | 36 13 20 | 3025 | 37 43 2 | 2961 | 39 14 4 | 2905 |
| | Aldebaran | E. | 45 43 8 | 2419 | 44 0 1 | 2424 | 42 17 1 | 2431 | 40 34 10 | 2438 |
| | Sun | E. | 79 42 26 | 2587 | 78 3 13 | 2582 | 76 23 53 | 2577 | 74 44 26 | 2572 |
| 5 | α Aquilæ | W. | 94 28 22 | 3010 | 95 58 22 | 3012 | 97 28 20 | 3015 | 98 58 14 | 3021 |
| | Fomalhaut | W. | 68 30 26 | 2534 | 70 10 52 | 2524 | 71 51 32 | 2515 | 73 32 24 | 2507 |
| | α Pegasi | W. | 47 4 47 | 2704 | 48 41 22 | 2675 | 50 18 35 | 2649 | 51 56 23 | 2626 |
| | Aldebaran | E. | 32 3 55 | 2520 | 30 23 10 | 2548 | 28 43 4 | 2584 | 27 3 47 | 2627 |
| | Sun | E. | 66 25 39 | 2551 | 64 45 37 | 2548 | 63 5 31 | 2545 | 61 25 21 | 2543 |
| 6 | Fomalhaut | W. | 81 59 12 | 2479 | 83 40 54 | 2477 | 85 22 40 | 2475 | 87 4 29 | 2473 |
| | α Pegasi | W. | 60 12 15 | 2541 | 61 52 31 | 2530 | 63 33 3 | 2520 | 65 13 49 | 2510 |
| | Aldebaran | E. | 19 7 48 | 3091 | 17 39 27 | 3282 | 16 14 55 | 3543 | 14 55 18 | 3905 |
| | Sun | E. | 53 3 46 | 2535 | 51 23 22 | 2535 | 49 42 58 | 2535 | 48 2 33 | 2536 |
| 7 | Fomalhaut | W. | 95 33 37 | 2479 | 97 15 19 | 2483 | 98 56 56 | 2489 | 100 38 25 | 2495 |
| | α Pegasi | W. | 73 40 22 | 2481 | 75 22 2 | 2479 | 77 3 45 | 2477 | 78 45 31 | 2477 |
| | α Arietis | W. | 30 23 43 | 2313 | 32 9 23 | 2306 | 33 55 14 | 2301 | 35 41 12 | 2296 |
| | Sun | E. | 39 41 2 | 2548 | 38 0 56 | 2552 | 36 20 55 | 2558 | 34 41 2 | 2564 |
| 8 | α Pegasi | W. | 87 14 5 | 2487 | 88 55 37 | 2492 | 90 37 2 | 2497 | 92 18 19 | 2503 |
| | α Arietis | W. | 44 32 1 | 2293 | 46 18 11 | 2296 | 48 4 17 | 2298 | 49 50 20 | 2302 |
| 12 | Mars | E. | 52 39 30 | 2772 | 51 4 25 | 2788 | 49 29 42 | 2804 | 47 55 19 | 2819 |
| | Jupiter | E. | 55 3 25 | 2632 | 53 25 13 | 2648 | 51 47 23 | 2663 | 50 9 53 | 2678 |
| | Spica ♍ | E. | 66 4 51 | 2588 | 64 25 39 | 2603 | 62 46 48 | 2617 | 61 8 16 | 2632 |
| | Saturn | E. | 108 27 22 | 2608 | 106 48 38 | 2622 | 105 10 13 | 2637 | 103 32 8 | 2651 |
| 13 | Sun | W. | 37 55 21 | 3073 | 39 24 3 | 3087 | 40 52 29 | 3101 | 42 20 37 | 3115 |
| | Mars | E. | 40 8 31 | 2899 | 38 36 11 | 2916 | 37 4 12 | 2931 | 35 32 33 | 2946 |
| | Jupiter | E. | 42 7 40 | 2758 | 40 32 17 | 2773 | 38 57 14 | 2790 | 37 22 33 | 2806 |
| | Spica ♍ | E. | 53 0 42 | 2707 | 51 24 11 | 2721 | 49 47 59 | 2736 | 48 12 7 | 2750 |
| | Saturn | E. | 95 26 35 | 2724 | 93 50 27 | 2738 | 92 14 38 | 2753 | 90 39 8 | 2768 |
| 14 | Sun | W. | 49 37 6 | 3184 | 51 3 34 | 3198 | 52 29 46 | 3212 | 53 55 41 | 3224 |
| | Mars | E. | 27 59 9 | 3025 | 26 29 27 | 3040 | 25 0 4 | 3056 | 23 31 0 | 3071 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III h. | P.L. of diff. | VI h. | P.L. of diff. | IX h. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ |
| 14 | Jupiter | E. | 35 48 13 | 2822 | 34 14 14 | 2838 | 32 40 35 | 2855 | 31 7 18 |
| | Spica ♍ | E. | 46 36 34 | 2764 | 45 1 19 | 2779 | 43 26 24 | 2792 | 41 51 46 |
| | Saturn | E. | 89 3 58 | 2782 | 87 29 6 | 2795 | 85 54 32 | 2810 | 84 20 17 |
| | Antares | E. | 92 30 50 | 2763 | 90 55 34 | 2778 | 89 20 38 | 2792 | 87 46 0 |
| 15 | Sun | W. | 55 21 22 | 3237 | 56 46 47 | 3250 | 58 11 57 | 3263 | 59 36 52 |
| | Spica ♍ | E. | 34 3 4 | 2873 | 32 30 10 | 2885 | 30 57 32 | 2898 | 29 25 10 |
| | Saturn | E. | 76 33 29 | 2891 | 75 0 59 | 2904 | 73 28 45 | 2916 | 71 56 47 |
| | Antares | E. | 79 57 10 | 2871 | 78 24 14 | 2883 | 76 51 33 | 2895 | 75 19 8 |
| 16 | Sun | W. | 66 38 4 | 3330 | 68 1 41 | 3340 | 69 25 6 | 3350 | 70 48 19 |
| | Regulus | W. | 32 16 24 | 2964 | 33 47 22 | 2973 | 35 18 9 | 2982 | 36 48 44 |
| | Venus | W. | 21 27 24 | 3345 | 22 50 44 | 3355 | 24 13 52 | 3365 | 25 36 49 |
| | Saturn | E. | 64 20 44 | 2986 | 62 50 14 | 2997 | 61 19 58 | 3007 | 59 49 54 |
| | Antares | E. | 67 40 40 | 2961 | 66 9 38 | 2970 | 64 38 47 | 2979 | 63 8 8 |
| 17 | Sun | W. | 77 42 2 | 3399 | 79 4 20 | 3404 | 80 26 32 | 3411 | 81 48 36 |
| | Regulus | W. | 44 19 12 | 3026 | 45 48 52 | 3033 | 47 18 24 | 3039 | 48 47 49 |
| | Venus | W. | 32 29 5 | 3413 | 33 51 7 | 3419 | 35 13 2 | 3426 | 36 34 49 |
| | Saturn | E. | 52 22 34 | 3063 | 50 53 39 | 3071 | 49 24 54 | 3079 | 47 56 19 |
| | Antares | E. | 55 37 26 | 3025 | 54 7 44 | 3031 | 52 38 10 | 3037 | 51 8 43 |
| 18 | Sun | W. | 88 37 37 | 3436 | 89 59 13 | 3439 | 91 20 46 | 3440 | 92 42 17 |
| | Regulus | W. | 56 13 32 | 3062 | 57 42 28 | 3064 | 59 11 22 | 3066 | 60 40 13 |
| | Venus | W. | 43 22 26 | 3450 | 44 43 46 | 3453 | 46 5 3 | 3455 | 47 26 18 |
| | Saturn | E. | 40 35 46 | 3124 | 39 8 6 | 3132 | 37 40 36 | 3139 | 36 13 14 |
| | Antares | E. | 43 42 51 | 3061 | 42 13 54 | 3063 | 40 44 59 | 3065 | 39 16 7 |
| | α Aquilæ | E. | 96 32 8 | 3837 | 95 17 44 | 3835 | 94 3 18 | 3834 | 92 48 51 |
| 19 | Sun | W. | 99 29 38 | 3441 | 100 51 8 | 3439 | 102 12 40 | 3438 | 103 34 14 |
| | Venus | W. | 54 12 24 | 3454 | 55 33 40 | 3452 | 56 54 58 | 3449 | 58 16 19 |
| | Jupiter | W. | 24 38 21 | 3149 | 26 5 31 | 3143 | 27 32 48 | 3138 | 29 0 12 |
| | Mars | W. | 23 59 51 | 3290 | 25 24 14 | 3287 | 26 48 41 | 3284 | 28 13 11 |
| | Antares | E. | 31 51 59 | 3067 | 30 23 9 | 3065 | 28 54 16 | 3062 | 27 25 20 |
| | α Aquilæ | E. | 86 36 36 | 3837 | 85 22 12 | 3838 | 84 7 49 | 3840 | 82 53 28 |
| 20 | Sun | W. | 110 23 0 | 3415 | 111 45 0 | 3409 | 113 7 6 | 3403 | 114 29 19 |
| | Venus | W. | 65 4 3 | 3424 | 66 25 52 | 3419 | 67 47 47 | 3412 | 69 9 50 |
| | Jupiter | W. | 36 18 49 | 3105 | 37 46 53 | 3098 | 39 15 5 | 3091 | 40 43 25 |
| | Mars | W. | 35 16 51 | 3258 | 36 41 52 | 3252 | 38 7 0 | 3246 | 39 32 15 |
| | Spica ♍ | W. | 25 55 59 | 3043 | 27 25 19 | 3038 | 28 54 44 | 3031 | 30 24 18 |
| | α Aquilæ | E. | 76 42 35 | 3863 | 75 28 38 | 3870 | 74 14 48 | 3877 | 73 1 5 |
| 21 | Sun | W. | 121 22 19 | 3359 | 122 45 22 | 3351 | 124 8 34 | 3342 | 125 31 57 |
| | Venus | W. | 76 2 9 | 3365 | 77 25 5 | 3356 | 78 48 12 | 3346 | 80 11 30 |
| | Jupiter | W. | 48 7 20 | 3045 | 49 36 37 | 3036 | 51 6 5 | 3027 | 52 35 44 |
| | Mars | W. | 46 40 33 | 3202 | 48 6 40 | 3193 | 49 32 58 | 3183 | 50 59 27 |
| | Spica ♍ | W. | 37 54 7 | 2989 | 39 24 33 | 2981 | 40 55 9 | 2973 | 42 25 56 |
| | α Aquilæ | E. | 66 54 45 | 3939 | 65 42 5 | 3953 | 64 29 39 | 3969 | 63 17 29 |
| 22 | Venus | W. | 87 11 1 | 3281 | 88 35 35 | 3270 | 90 0 22 | 3258 | 91 25 23 |
| | Jupiter | W. | 60 7 0 | 2966 | 61 37 55 | 2956 | 63 9 3 | 2945 | 64 40 25 |
| | Mars | W. | 58 14 47 | 3123 | 59 42 29 | 3111 | | | |
| | Spica ♍ | W. | 50 2 49 | 2914 | 51 34 50 | 290[illegible] | | | |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Midnight. | P.L. of diff. | XV$^h$. | P.L. of diff. | XVIII$^h$. | P.L. of diff. | XXI$^h$. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 14 | Jupiter | E. | 29 34 22 | 2887 | 28 1 47 | 2905 | 26 29 35 | 2922 | 24 57 44 | 2940 |
| | Spica ♍ | E. | 40 17 27 | 2821 | 38 43 26 | 2833 | 37 9 41 | 2847 | 35 36 14 | 2860 |
| | Saturn | E. | 82 46 21 | 2838 | 81 12 42 | 2851 | 79 39 20 | 2865 | 78 6 16 | 2878 |
| | Antares | E. | 86 11 39 | 2819 | 84 37 36 | 2833 | 83 3 51 | 2845 | 81 30 22 | 2859 |
| 15 | Sun | W. | 61 1 33 | 3287 | 62 26 0 | 3298 | 63 50 14 | 3309 | 65 14 15 | 3319 |
| | Spica ♍ | E. | 27 53 2 | 2921 | 26 21 10 | 2931 | 24 49 31 | 2943 | 23 18 7 | 2954 |
| | Saturn | E. | 70 25 5 | 2941 | 68 53 38 | 2953 | 67 22 26 | 2964 | 65 51 28 | 2975 |
| | Antares | E. | 73 46 58 | 2918 | 72 15 2 | 2930 | 70 43 21 | 2941 | 69 11 54 | 2951 |
| 16 | Sun | W. | 72 11 23 | 3368 | 73 34 16 | 3376 | 74 57 0 | 3384 | 76 19 35 | 3391 |
| | Regulus | W. | 38 19 9 | 2998 | 39 49 24 | 3006 | 41 19 29 | 3014 | 42 49 25 | 3021 |
| | Venus | W. | 26 59 35 | 3383 | 28 22 11 | 3391 | 29 44 38 | 3399 | 31 6 56 | 3407 |
| | Saturn | E. | 58 20 2 | 3027 | 56 50 23 | 3036 | 55 20 55 | 3046 | 53 51 39 | 3055 |
| | Antares | E. | 61 37 40 | 2997 | 60 7 23 | 3004 | 58 37 15 | 3011 | 57 7 16 | 3018 |
| 17 | Sun | W. | 83 10 35 | 3422 | 84 32 27 | 3425 | 85 54 15 | 3430 | 87 15 58 | 3433 |
| | Regulus | W. | 50 17 8 | 3048 | 51 46 21 | 3052 | 53 15 29 | 3056 | 54 44 33 | 3060 |
| | Venus | W. | 37 56 30 | 3436 | 39 18 6 | 3441 | 40 39 36 | 3444 | 42 1 3 | 3447 |
| | Saturn | E. | 46 27 54 | 3095 | 44 59 38 | 3103 | 43 31 32 | 3110 | 42 3 34 | 3118 |
| | Antares | E. | 49 39 22 | 3047 | 48 10 7 | 3051 | 46 40 57 | 3055 | 45 11 52 | 3058 |
| 18 | Sun | W. | 94 3 46 | 3443 | 95 25 14 | 3443 | 96 46 42 | 3444 | 98 8 9 | 3442 |
| | Regulus | W. | 62 9 2 | 3069 | 63 37 50 | 3069 | 65 6 38 | 3069 | 66 35 26 | 3068 |
| | Venus | W. | 48 47 32 | 3457 | 50 8 44 | 3456 | 51 29 57 | 3456 | 52 51 10 | 3455 |
| | Saturn | E. | 34 46 1 | 3156 | 33 18 59 | 3164 | 31 52 7 | 3173 | 30 25 26 | 3184 |
| | Antares | E. | 37 47 16 | 3067 | 36 18 26 | 3068 | 34 49 37 | 3068 | 33 20 48 | 3068 |
| | α Aquilæ | E. | 91 34 24 | 3833 | 90 19 56 | 3834 | 89 5 29 | 3834 | 87 51 2 | 3835 |
| 19 | Sun | W. | 104 55 51 | 3432 | 106 17 32 | 3429 | 107 39 16 | 3424 | 109 1 5 | 3419 |
| | Venus | W. | 59 37 43 | 3443 | 60 59 11 | 3439 | 62 20 43 | 3435 | 63 42 20 | 3430 |
| | Jupiter | W. | 30 27 42 | 3127 | 31 55 19 | 3122 | 33 23 2 | 3116 | 34 50 52 | 3110 |
| | Mars | W. | 29 37 45 | 3277 | 31 2 24 | 3272 | 32 27 8 | 3268 | 33 51 57 | 3264 |
| | Antares | E. | 25 56 22 | 3057 | 24 27 20 | 3055 | 22 58 15 | 3051 | 21 29 5 | 3047 |
| | α Aquilæ | E. | 81 39 10 | 3846 | 80 24 55 | 3850 | 79 10 44 | 3854 | 77 56 37 | 3858 |
| 20 | Sun | W. | 115 51 39 | 3391 | 117 14 6 | 3383 | 118 36 42 | 3376 | 119 59 26 | 3368 |
| | Venus | W. | 70 32 1 | 3399 | 71 54 19 | 3391 | 73 16 46 | 3382 | 74 39 23 | 3374 |
| | Jupiter | W. | 42 11 54 | 3077 | 43 40 31 | 3069 | 45 9 18 | 3062 | 46 38 14 | 3054 |
| | Mars | W. | 40 57 37 | 3232 | 42 23 8 | 3225 | 43 48 47 | 3218 | 45 14 35 | 3209 |
| | Spica ♍ | W. | 31 53 59 | 3019 | 33 23 48 | 3013 | 34 53 45 | 3006 | 36 23 51 | 2998 |
| | α Aquilæ | E. | 71 47 29 | 3893 | 70 34 2 | 3903 | 69 20 45 | 3914 | 68 7 39 | 3925 |
| 21 | Sun | W. | 126 55 31 | 3323 | 128 19 16 | 3313 | 129 43 12 | 3303 | 131 7 20 | 3293 |
| | Venus | W. | 81 34 59 | 3326 | 82 58 41 | 3315 | 84 22 35 | 3305 | 85 46 41 | 3293 |
| | Jupiter | W. | 54 5 35 | 3009 | 55 35 37 | 2998 | 57 5 52 | 2988 | 58 36 20 | 2978 |
| | Mars | W. | 52 26 7 | 3165 | 53 52 58 | 3154 | 55 20 2 | 3144 | 56 47 18 | 3134 |
| | Spica ♍ | W. | 43 56 55 | 2954 | 45 28 5 | 2945 | 46 59 27 | 2935 | 48 31 2 | 2925 |
| | α Aquilæ | E. | 62 5 37 | 4009 | 60 54 6 | 4031 | 59 42 57 | 4054 | 58 32 11 | 4082 |
| 22 | Venus | W. | 92 50 39 | 3232 | 94 16 10 | 3219 | 95 41 56 | 3206 | 97 7 58 | 3194 |
| | Jupiter | W. | 66 12 1 | 2922 | 67 43 52 | 2910 | 69 15 58 | 2898 | 70 48 19 | 2887 |
| | | W. | 64 6 58 | 3077 | 65 35 36 | 3065 | 67 4 29 | 3052 | 68 33 37 | 3041 |
| | | | 56 12 15 | 2870 | 57 45 12 | 2859 | 59 18 24 | 2846 | 60 51 52 | 2835 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III h. | P.L. of diff. | VI h. | P.L. of diff. | IX h. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ |
| 22 | Fomalhaut | E. | 78 47 40 | 3187 | 77 21 15 | 3179 | 75 54 41 | 3172 | 74 27 |
| 23 | Venus | W. | 98 34 15 | 3180 | 100 0 48 | 3167 | 101 27 37 | 3153 | 102 54 |
| | Jupiter | W. | 72 20 55 | 2874 | 73 53 47 | 2862 | 75 26 55 | 2849 | 77 0 |
| | Mars | W. | 70 2 59 | 3027 | 71 32 38 | 3015 | 73 2 32 | 3002 | 74 32 |
| | Spica ♍ | W. | 62 25 34 | 2823 | 63 59 32 | 2811 | 65 33 46 | 2798 | 67 8 |
| | Fomalhaut | E. | 67 12 34 | 3137 | 65 45 9 | 3133 | 64 17 39 | 3129 | 62 50 |
| | α Pegasi | E. | 89 1 12 | 3065 | 87 32 19 | 3052 | 86 3 11 | 3041 | 84 33 |
| 24 | Jupiter | W. | 84 51 23 | 2773 | 86 26 26 | 2760 | 88 1 46 | 2748 | 89 37 |
| | Mars | W. | 82 7 37 | 2924 | 83 39 26 | 2911 | 85 11 31 | 2898 | 86 43 |
| | Saturn | W. | 33 32 57 | 2812 | 35 7 9 | 2793 | 36 41 46 | 2774 | 38 16 |
| | Antares | W. | 29 10 22 | 2723 | 30 46 31 | 2711 | 32 22 57 | 2698 | 33 59 |
| | Fomalhaut | E. | 55 31 44 | 3127 | 54 4 7 | 3131 | 52 36 35 | 3137 | 51 9 |
| | α Pegasi | E. | 77 3 42 | 2979 | 75 33 3 | 2970 | 74 2 13 | 2962 | 72 31 |
| 25 | Jupiter | W. | 97 39 34 | 2672 | 99 16 51 | 2660 | 100 54 24 | 2649 | 102 32 |
| | Mars | W. | 94 29 54 | 2820 | 96 3 56 | 2807 | 97 38 15 | 2794 | 99 12 |
| | Saturn | W. | 46 17 46 | 2672 | 47 55 3 | 2658 | 49 32 40 | 2643 | 51 10 |
| | Antares | W. | 42 7 30 | 2622 | 43 45 55 | 2610 | 45 24 37 | 2598 | 47 3 |
| | Fomalhaut | E. | 43 55 29 | 3225 | 42 29 49 | 3252 | 41 4 41 | 3283 | 39 40 |
| | α Pegasi | E. | 64 53 54 | 2924 | 63 22 6 | 2920 | 61 50 13 | 2918 | 60 18 |
| 26 | Mars | W. | 107 9 46 | 2723 | 108 45 55 | 2711 | 110 22 20 | 2700 | 111 59 |
| | Saturn | W. | 59 25 3 | 2562 | 61 4 50 | 2551 | 62 44 53 | 2538 | 64 25 |
| | Antares | W. | 55 22 29 | 2528 | 57 3 3 | 2517 | 58 43 53 | 2507 | 60 24 |
| | α Pegasi | E. | 52 38 47 | 2932 | 51 7 8 | 2940 | 49 35 40 | 2950 | 48 4 |
| | α Arietis | E. | 92 56 58 | 2553 | 91 16 58 | 2541 | 89 36 42 | 2530 | 87 56 |
| 27 | Saturn | W. | 72 50 45 | 2474 | 74 32 35 | 2464 | 76 14 39 | 2455 | 77 56 |
| | Antares | W. | 68 53 56 | 2446 | 70 36 25 | 2437 | 72 19 7 | 2428 | 74 2 |
| | α Pegasi | E. | 40 33 55 | 3087 | 39 5 30 | 3128 | 37 37 54 | 3175 | 36 11 |
| | α Arietis | E. | 79 30 4 | 2472 | 77 48 11 | 2463 | 76 6 5 | 2454 | 74 23 |
| 28 | Saturn | W. | 86 31 20 | 2406 | 88 14 46 | 2399 | 89 58 22 | 2393 | 91 42 |
| | Antares | W. | 82 39 30 | 2380 | 84 23 33 | 2374 | 86 7 45 | 2367 | 87 52 |
| | α Arietis | E. | 65 49 34 | 2410 | 64 6 13 | 2404 | 62 22 44 | 2398 | 60 39 |
| | Aldebaran | E. | 97 5 43 | 2455 | 95 23 27 | 2449 | 93 41 2 | 2441 | 91 58 |
| 29 | Saturn | W. | 100 22 58 | 2360 | 102 7 30 | 2355 | 103 52 9 | 2352 | 105 36 |
| | α Arietis | E. | 51 59 19 | 2373 | 50 15 5 | 2370 | 48 30 47 | 2368 | 46 46 |
| | Aldebaran | E. | 83 23 21 | 2409 | 81 39 59 | 2405 | 79 56 31 | 2401 | 78 12 |
| | Sun | E. | 141 26 59 | 2659 | 139 49 24 | 2653 | 138 11 41 | 2647 | 136 33 |
| 30 | α Aquilæ | W. | 62 27 22 | 3316 | 63 51 15 | 3282 | 65 15 47 | 3253 | 66 40 |
| | Fomalhaut | W. | 34 9 26 | 3231 | 35 34 59 | 3150 | 37 2 8 | 3081 | 38 30 |
| | α Arietis | E. | 38 4 26 | 2368 | 36 20 5 | 2371 | 34 35 49 | 2376 | 32 51 |
| | Aldebaran | E. | 69 34 12 | 2388 | 67 50 20 | 2387 | 66 6 27 | 2387 | 64 22 |
| | Sun | E. | 128 22 49 | 2618 | 126 44 19 | 2615 | 125 5 44 | 2611 | 123 27 |
| 31 | α Aquilæ | W. | 73 53 43 | 3122 | 75 21 26 | | | [illegible] | 78 17 |
| | Fomalhaut | W. | 46 9 48 | 2805 | 47 44 [illegible] | | | | [illegible] 54 |
| | α Pegasi | W. | 26 46 40 | 3770 | 28 [illegible] | | | | |
| | Aldebaran | E. | 55 43 36 | 2398 | 53 | | | | |
| | Sun | E. | 115 12 56 | 2598 | 113 | | | | |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Midnight. | P.L. of diff. | XV$^h$. | P.L. of diff. | XVIII$^h$. | P.L. of diff. | XXI$^h$. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 22 | Fomalhaut | E. | 73 1 9 | 3159 | 71 34 11 | 3153 | 70 7 5 | 3147 | 68 39 52 | 3143 |
| 23 | Venus | W. | 104 22 5 | 3125 | 105 49 44 | 3111 | 107 17 40 | 3098 | 108 45 52 | 3083 |
| | Jupiter | W. | 78 33 59 | 2825 | 80 7 55 | 2811 | 81 42 8 | 2799 | 83 16 37 | 2786 |
| | Mars | W. | 76 3 8 | 2976 | 77 33 51 | 2963 | 79 4 50 | 2950 | 80 36 5 | 2937 |
| | Spica ♍ | W. | 68 43 2 | 2773 | 70 18 5 | 2761 | 71 53 24 | 2748 | 73 29 0 | 2736 |
| | Fomalhaut | E. | 61 22 26 | 3124 | 59 54 46 | 3124 | 58 27 5 | 3123 | 56 59 23 | 3125 |
| | α Pegasi | E. | 83 4 14 | 3019 | 81 34 25 | 3009 | 80 4 24 | 2998 | 78 34 9 | 2989 |
| 24 | Jupiter | W. | 91 13 15 | 2722 | 92 49 25 | 2710 | 94 25 51 | 2698 | 96 2 34 | 2685 |
| | Mars | W. | 88 16 32 | 2872 | 89 49 27 | 2859 | 91 22 39 | 2845 | 92 56 8 | 2832 |
| | Saturn | W. | 39 52 14 | 2738 | 41 28 4 | 2721 | 43 4 16 | 2705 | 44 40 50 | 2688 |
| | Antares | W. | 35 36 40 | 2672 | 37 13 57 | 2660 | 38 51 31 | 2647 | 40 29 22 | 2635 |
| | Fomalhaut | E. | 49 41 56 | 3155 | 48 14 53 | 3167 | 46 48 5 | 3183 | 45 21 36 | 3202 |
| | α Pegasi | E. | 71 0 2 | 2946 | 69 28 42 | 2939 | 67 57 13 | 2934 | 66 25 37 | 2928 |
| 25 | Jupiter | W. | 104 10 18 | 2624 | 105 48 40 | 2613 | 107 27 17 | 2602 | 109 6 9 | 2591 |
| | Mars | W. | 100 47 42 | 2770 | 102 22 49 | 2758 | 103 58 12 | 2746 | 105 33 51 | 2734 |
| | Saturn | W. | 52 48 53 | 2615 | 54 27 28 | 2601 | 56 6 22 | 2588 | 57 45 34 | 2575 |
| | Antares | W. | 48 42 49 | 2574 | 50 22 20 | 2562 | 52 2 7 | 2551 | 53 42 10 | 2539 |
| | Fomalhaut | E. | 38 16 23 | 3365 | 36 53 27 | 3418 | 35 31 31 | 3480 | 34 10 45 | 3554 |
| | α Pegasi | E. | 58 46 19 | 2916 | 57 14 21 | 2918 | 55 42 25 | 2921 | 54 10 33 | 2926 |
| 26 | Mars | W. | 113 35 53 | 2679 | 115 13 1 | 2669 | 116 50 23 | 2658 | 118 27 59 | 2649 |
| | Saturn | W. | 66 5 49 | 2515 | 67 46 41 | 2504 | 69 27 48 | 2495 | 71 9 9 | 2484 |
| | Antares | W. | 62 6 17 | 2485 | 63 47 51 | 2475 | 65 29 39 | 2465 | 67 11 41 | 2456 |
| | α Pegasi | E. | 46 33 29 | 2981 | 45 2 53 | 3001 | 43 32 42 | 3026 | 42 3 1 | 3054 |
| | α Arietis | E. | 86 15 25 | 2510 | 84 34 26 | 2500 | 82 53 12 | 2490 | 81 11 45 | 2480 |
| 27 | Saturn | W. | 79 39 25 | 2437 | 81 22 7 | 2429 | 83 5 0 | 2422 | 84 48 4 | 2413 |
| | Antares | W. | 75 45 9 | 2411 | 77 28 28 | 2404 | 79 11 57 | 2396 | 80 55 38 | 2388 |
| | α Pegasi | E. | 34 45 42 | 3296 | 33 21 26 | 3372 | 31 58 38 | 3464 | 30 37 34 | 3574 |
| | α Arietis | E. | 72 41 17 | 2438 | 70 58 37 | 2431 | 69 15 46 | 2424 | 67 32 45 | 2417 |
| 28 | Saturn | W. | 93 26 1 | 2381 | 95 10 3 | 2375 | 96 54 14 | 2369 | 98 38 33 | 2365 |
| | Antares | W. | 89 36 39 | 2355 | 91 21 19 | 2349 | 93 6 7 | 2343 | 94 51 4 | 2338 |
| | α Arietis | E. | 58 55 22 | 2388 | 57 11 30 | 2384 | 55 27 32 | 2380 | 53 43 28 | 2376 |
| | Aldebaran | E. | 90 15 41 | 2429 | 88 32 48 | 2423 | 86 49 46 | 2418 | 85 6 37 | 2413 |
| 29 | Saturn | W. | 107 21 42 | 2345 | 109 6 36 | 2342 | 110 51 34 | 2340 | 112 36 36 | 2337 |
| | α Arietis | E. | 45 2 3 | 2366 | 43 17 39 | 2364 | 41 33 13 | 2366 | 39 48 49 | 2366 |
| | Aldebaran | E. | 76 29 19 | 2395 | 74 45 37 | 2392 | 73 1 51 | 2391 | 71 18 3 | 2389 |
| | Sun | E. | 134 55 51 | 2636 | 133 17 45 | 2631 | 131 39 32 | 2626 | 130 1 13 | 2623 |
| 30 | α Aquilæ | W. | 68 6 34 | 3200 | 69 32 43 | 3177 | 70 59 19 | 3157 | 72 26 20 | 3138 |
| | Fomalhaut | W. | 40 0 30 | 2965 | 41 31 26 | 2918 | 43 3 22 | 2876 | 44 36 11 | 2839 |
| | α Arietis | E. | 31 7 38 | 2389 | 29 23 48 | 2398 | 27 40 10 | 2410 | 25 56 49 | 2425 |
| | Aldebaran | E. | 62 38 42 | 2389 | 60 54 51 | 2391 | 59 11 3 | 2392 | 57 27 17 | 2395 |
| | Sun | E. | 121 48 21 | 2606 | 120 9 34 | 2604 | 118 30 44 | 2602 | 116 51 51 | 2600 |
| 31 | α Aquilæ | W. | 79 46 14 | 3074 | 81 14 56 | 3066 | 82 43 47 | 3060 | 84 12 46 | 3055 |
| | Fomalhaut | W. | 52 30 49 | 2705 | 54 7 23 | 2686 | 55 44 22 | 2669 | 57 21 44 | 2653 |
| | α Pegasi | W. | 32 5 8 | 3243 | 33 30 26 | 3157 | 34 57 27 | 3088 | 36 25 59 | 3017 |
| | [illegible]ebaran | E. | 48 49 47 | 2420 | 47 6 41 | 2427 | 45 23 45 | 2436 | 43 41 2 | 2447 |
| | | E. | 108 36 52 | 2593 | 106 57 47 | 2593 | 105 18 42 | 2592 | 103 39 36 | 2592 |

## CONFIGURATIONS OF THE SATELLITES OF JUPITER,

At $9^h\ 30^m$, Mean Time.

| Day of the Month. | West. | East. |
|---|---|---|
| 1 | | 1 4 2 3 |
| 2 | 1 | 3 2 4 |
| 3 | 2 3 | 1 4 |
| 4 | 3 1 2 | 4 |
| 5 | 1 3 | 2 4 |
| 6 | 3 ● 2 | 1 4 |
| 7 | 2 1 | 3 4 |
| 8 | | 2 1 4 3 |
| 9 | 1 4 | 3 2 |
| 10 | 4 2 3 | 1 |
| 11 | 4 3 1 2 | |
| 12 | 4 3 | 1 2 |
| 13 | 4 | ● 3 1 |
| 14 | 4 2 1 | 3 |
| 15 | 4 | 2 1 3 |
| 16 | 4 1 | 2 3 |
| 17 | 2 3 4 | 1 |
| 18 | 3 2 1 | 4 |
| 19 | 3 | 1 2 4 |
| 20 | 1 ● 3 | 2 4 |
| 21 | 2 1 | 3 4 |
| 22 | ● 2 | 1 3 4 |
| 23 | 1 | 2 3 4 |
| 24 | 2 3 | 1 4 |
| 25 | 3 2 1 | 4 |
| 26 | 3 4 | 1 2 |
| 27 | 4 3 1 | 2 |
| 28 | 4 2 | 3 |
| 29 | 4 | 1 3 |
| 30 | 4 1 | 2 3 |
| 31 | 4 2 3 | 1 |

This Table represents, at $9^h\ 30^m$ after *Mean Noon* of each day of the month, the relative posit of the images of Jupiter and his Satellites, as they would appear (disregarding their latitudes an inverting telescope. Jupiter is indicated by the white circles (○) in the centre of the p the Satellites by points. The numerals 1, 2, 3, and 4, annexed to the points, serve to disting the Satellites from each other; and their positions are such as to indicate the directions of the S lites' motions, which are in all cases to be considered as *towards the numerals.* When a Satelli at its greatest elongation, the point is placed above or below the centre of the numeral. A circle (○) at the left or right hand of the page, denotes that the Satellite placed by the s *on* the disc of Jupiter, and a black circle (●) that it is either *behind* the disc, or in th Jupiter.

## ECLIPSES OF THE SATELLITES OF JUPITER.

| ELLITE. | Day of the Month. | Mean Time. | Sidereal Time. | PHASE as seen in an inverting Telescope. |
|---|---|---|---|---|
| | | h m s | h m s | |
| I. | 1 | 1 31 21·1 | 8 7 1·4 | Em. |
| | 2 | 20 0 0·3 | 2 42 39·3 | Em. |
| | 4 | 14 28 39·4 | 21 18 17·1 | Em. |
| | 6 | 8 57 17·7 | 15 53 54·1 | Em. |
| | 8 | 3 25 57·4 | 10 29 32·5 | Em. |
| | 9 | 21 54 35·6 | 5 5 9·3 | Em. |
| | 11 | 16 23 14·7 | 23 40 47·1 | Em. |
| | 13 | 10 51 53·1 | 18 16 24·2 | Em. |
| | 15 | 5 20 32·7 | 12 52 2·4 | Em. |
| | 16 | 23 49 10·3 | 7 27 38·7 | Em. |
| | 18 | 18 17 50·2 | 2 3 17·3 | Em. |
| | 20 | 12 46 27·9 | 20 38 53·6 | Em. |
| | 22 | 7 15 7·3 | 15 14 31·8 | Em. |
| | 24 | 1 43 45·2 | 9 50 8·3 | Em. |
| | 25 | 20 12 24·6 | 4 25 46·4 | Em. |
| | 27 | 14 41 1·3 | 23 1 21·9 | Em. |
| | 29* | 9 9 41·5 | 17 37 0·7 | Em. |
| | 31 | 3 38 18·5 | 12 12 36·4 | Em. |
| II. | 0 | 23 38 34·0 | 6 13 55·8 | Im. |
| | 1 | 2 0 34·1 | 8 36 19·2 | Em. |
| | 4 | 12 57 52·5 | 19 47 15·2 | Im. |
| | 4 | 15 19 43·5 | 22 9 29·5 | Em. |
| | 8 | 2 16 5·5 | 9 19 29·0 | Im. |
| | 8 | 4 37 49·6 | 11 41 36·5 | Em. |
| | 11 | 15 35 23·4 | 22 52 47·9 | Im. |
| | 11 | 17 56 59·3 | 1 14 47·1 | Em. |
| | 15 | 4 53 35·3 | 12 25 0·6 | Im. |
| | 15 | 7 15 4·2 | 14 46 52·8 | Em. |
| | 18 | 18 12 52·8 | 1 58 19·1 | Im. |
| | 18 | 20 34 13·6 | 4 20 3·2 | Em. |
| | 22 | 7 31 2·7 | 15 30 29·8 | Im. |
| | 22 | 9 52 14·9 | 17 52 5·2 | Em. |
| | 25 | 23 11 21·6 | 7 25 12·8 | Em. |
| | 29 | 12 29 23·9 | 20 57 15·9 | Em. |
| III. | 6 | 9 18 41·2 | 16 15 21·1 | Im. |
| | 6 | 11 46 4·2 | 18 43 8·2 | Em. |
| | 13 | 13 18 22·1 | 20 43 17·2 | Im. |
| | 13 | 15 45 1·8 | 23 10 21·1 | Em. |
| | 20 | 17 17 30·0 | 1 10 40·3 | Im. |
| | 20 | 19 43 27·1 | 3 37 1·4 | Em. |
| | | 21 16 47·0 | 5 38 12·5 | Im. |
| | | 23 41 58·6 | 8 3 48·0 | Em. |



APPROXIMATE SIDER

OF T

OCCULTATIONS OF JUPIT

TRANSITS OF THE

OVER T

| Satellite. | Occultations. Immersion. | F | | Approximate Declination. | Diff. for 1 hour. | Sidereal Time of the Semidiam. passing the Meridian.* |
|---|---|---|---|---|---|---|
| | d h m | | | ° ′ ″ | ″ | m s |
| I. | 2 23 14 | | | N.18 9 29 ·4 | 37 ·81 | 1 6 ·62 |
| | 4 17 5 | | | 17 54 22 ·0 | 38 ·55 | 1 6 ·54 |
| | 6 12 | | | 17 38 57 ·0 | 39 ·27 | 1 6 ·45 |
| | 7 7 | | | 17 23 14 ·6 | 39 ·97 | 1 6 ·37 |
| | 9 | | | 17 7 15 ·2 | 40 ·67 | 1 6 ·28 |
| | 11 | | | 16 50 59 ·0 | 41 ·36 | 1 6 ·19 |
| | 12 | | | 16 34 26 ·4 | 42 ·03 | 1 6 ·11 |
| | | | | 16 17 37 ·6 | 42 ·69 | 1 6 ·02 |
| | | | | 16 0 33 ·1 | 43 ·33 | 1 5 ·94 |
| | | | | 15 43 13 ·1 | 43 ·97 | 1 5 ·85 |
| | | | | 15 25 37 ·9 | 44 ·58 | 1 5 ·77 |
| | | | | 15 7 47 ·9 | 45 ·19 | 1 5 ·69 |
| | | | | 14 49 43 ·4 | 45 ·78 | 1 5 ·61 |
| | | | | 14 31 24 ·7 | 46 ·35 | 1 5 ·53 |
| | | | | 14 12 52 ·2 | 46 ·92 | 1 5 ·45 |
| | | | | 13 54 6 ·2 | 47 ·46 | 1 5 ·37 |
| | | | | 13 35 7 ·1 | 48 ·00 | 1 5 ·30 |
| | | | | 13 15 55 ·0 | 48 ·52 | 1 5 ·23 |
| | | | | 12 56 30 ·5 | 49 ·03 | 1 5 ·16 |
| | | | | 12 36 53 ·8 | 49 ·53 | 1 5 ·09 |
| | | | | 12 17 5 ·1 | 50 ·01 | 1 5 ·02 |
| | | | | 11 57 4 ·9 | 50 ·48 | 1 4 ·95 |
| | | | | 11 36 53 ·4 | 50 ·94 | 1 4 ·88 |
| | | | | 11 16 30 ·9 | 51 ·38 | 1 4 ·82 |
| | | | | 10 55 57 ·7 | 51 ·82 | 1 4 ·76 |
| | | | | 10 35 14 ·1 | 52 ·24 | 1 4 ·70 |
| | | | | 10 14 20 ·3 | 52 ·65 | 1 4 ·64 |
| | | | | 9 53 16 ·6 | 53 ·05 | 1 4 ·58 |
| | | | | 9 32 3 ·4 | 53 ·43 | 1 4 ·53 |
| | | | | 9 10 41 ·0 | 53 ·81 | 1 4 ·48 |
| | | | | 8 49 9 ·6 | 54 ·17 | 1 4 ·43 |
| | | | | N. 8 27 29 ·5 | | 1 4 ·38 |

* *Mean* Time of the Semidiameter passing may be found by subtracting 0″·18

| Day of the Month. | For correcting the Places of the Fixed Stars. At Mean Midnight, Logarithm of A | B | C | D | Mean Time of Transit of the First Point of Aries. | Mean Equinoctial Time, adding $0^{d}\cdot293960$. Days. | From Mean Noon of January 1. Day of the Year. | Fraction of the Year. |
|---|---|---|---|---|---|---|---|---|
| | | | | | h m s | | | |
| 1 | +0 ·4831 | −1 ·3029 | +9 ·7536 | −0 ·9289 | 17 21 43 ·57 | 100 | 181 | ·496 |
| 2 | 0 ·5247 | 1 ·3017 | 9 ·7566 | 0 ·9291 | 17 17 47 ·67 | 101 | 182 | ·498 |
| 3 | 0 ·5626 | 1 ·3003 | 9 ·7595 | 0 ·9294 | 17 13 51 ·76 | 102 | 183 | ·501 |
| 4 | +0 ·5974 | −1 ·2988 | +9 ·7623 | −0 ·9297 | 17 9 55 ·85 | 103 | 184 | ·504 |
| 5 | 0 ·6294 | 1 ·2972 | 9 ·7652 | 0 ·9300 | 17 5 59 ·94 | 104 | 185 | ·507 |
| 6 | 0 ·6592 | 1 ·2954 | 9 ·7680 | 0 ·9304 | 17 2 4 ·03 | 105 | 186 | ·509 |
| 7 | +0 ·6869 | −1 ·2935 | +9 ·7708 | −0 ·9307 | 16 58 8 ·12 | 106 | 187 | ·512 |
| 8 | 0 ·7129 | 1 ·2915 | 9 ·7735 | 0 ·9311 | 16 54 12 ·20 | 107 | 188 | ·515 |
| 9 | 0 ·7372 | 1 ·2894 | 9 ·7762 | 0 ·9316 | 16 50 16 ·28 | 108 | 189 | ·517 |
| 10 | +0 ·7602 | −1 ·2871 | +9 ·7789 | −0 ·9320 | 16 46 20 ·36 | 109 | 190 | ·520 |
| 11 | 0 ·7819 | 1 ·2847 | 9 ·7816 | 0 ·9325 | 16 42 24 ·45 | 110 | 191 | ·523 |
| 12 | 0 ·8025 | 1 ·2821 | 9 ·7843 | 0 ·9330 | 16 38 28 ·53 | 111 | 192 | ·526 |
| 13 | +0 ·8220 | −1 ·2795 | +9 ·7869 | −0 ·9335 | 16 34 32 ·62 | 112 | 193 | ·528 |
| 14 | 0 ·8406 | 1 ·2766 | 9 ·7894 | 0 ·9340 | 16 30 36 ·71 | 113 | 194 | ·531 |
| 15 | 0 ·8583 | 1 ·2737 | 9 ·7920 | 0 ·9346 | 16 26 40 ·80 | 114 | 195 | ·534 |
| 16 | +0 ·8751 | −1 ·2706 | +9 ·7945 | −0 ·9352 | 16 22 44 ·90 | 115 | 196 | ·537 |
| 17 | 0 ·8912 | 1 ·2673 | 9 ·7970 | 0 ·9358 | 16 18 48 ·99 | 116 | 197 | ·539 |
| 18 | 0 ·9067 | 1 ·2640 | 9 ·7995 | 0 ·9364 | 16 14 53 ·08 | 117 | 198 | ·542 |
| 19 | +0 ·9215 | −1 ·2604 | +9 ·8019 | −0 ·9370 | 16 10 57 ·17 | 118 | 199 | ·545 |
| 20 | 0 ·9357 | 1 ·2567 | 9 ·8043 | 0 ·9377 | 16 7 1 ·26 | 119 | 200 | ·548 |
| 21 | 0 ·9493 | 1 ·2529 | 9 ·8067 | 0 ·9383 | 16 3 5 ·35 | 120 | 201 | ·550 |
| 22 | +0 ·9624 | −1 ·2489 | +9 ·8091 | −0 ·9390 | 15 59 9 ·43 | 121 | 202 | ·553 |
| 23 | 0 ·9750 | 1 ·2447 | 9 ·8114 | 0 ·9397 | 15 55 13 ·52 | 122 | 203 | ·556 |
| 24 | 0 ·9871 | 1 ·2404 | 9 ·8137 | 0 ·9404 | 15 51 17 ·60 | 123 | 204 | ·559 |
| 25 | +0 ·9988 | −1 ·2359 | +9 ·8160 | −0 ·9412 | 15 47 21 ·68 | 124 | 205 | ·561 |
| 26 | 1 ·0101 | 1 ·2313 | 9 ·8182 | 0 ·9419 | 15 43 25 ·77 | 125 | 206 | ·564 |
| 27 | 1 ·0209 | 1 ·2264 | 9 ·8204 | 0 ·9427 | 15 39 29 ·85 | 126 | 207 | ·567 |
| 28 | +1 ·0314 | −1 ·2214 | +9 ·8226 | −0 ·9434 | 15 35 33 ·95 | 127 | 208 | ·569 |
| 29 | 1 ·0415 | 1 ·2162 | 9 ·8248 | 0 ·9442 | 15 31 38 ·04 | 128 | 209 | ·572 |
| 30 | 1 ·0513 | 1 ·2108 | 9 ·8269 | 0 ·9449 | 15 27 42 ·13 | 129 | 210 | ·575 |
| 31 | 1 ·0607 | 1 ·2053 | 9 ·8290 | 0 ·9457 | 15 23 46 ·23 | 130 | 211 | ·578 |
| 32 | +1 ·0698 | −1 ·1995 | +9 ·8311 | −0 ·9465 | 15 19 50 ·32 | 131 | 212 | ·580 |

## AT APPARENT NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | Diff. for 1 hour. | THE SUN'S Apparent Declination. | Diff. for 1 hour. | Sidereal Time of the Semidiam. passing the Meridian.* | Equation of Time, *to be added to* / *subt. from Apparent Time.* |
|---|---|---|---|---|---|---|---|
| | | h m s | s | ° ′ ″ | ″ | m s | m s |
| Thur. | 1 | 8 43 40·70 | 9·712 | N.18 9 29·4 | 37·81 | 1 6·62 | 6 1·14 |
| Frid. | 2 | 8 47 33·78 | 9·687 | 17 54 22·0 | 38·55 | 1 6·54 | 5 57·68 |
| Sat. | 3 | 8 51 26·28 | 9·663 | 17 38 57·0 | 39·27 | 1 6·45 | 5 53·63 |
| *Sun.* | 4 | 8 55 18·19 | 9·639 | 17 23 14·6 | 39·97 | 1 6·37 | 5 48·99 |
| Mon. | 5 | 8 59 9·52 | 9·614 | 17 7 15·2 | 40·67 | 1 6·28 | 5 43·77 |
| Tues. | 6 | 9 3 0·26 | 9·590 | 16 50 59·0 | 41·36 | 1 6·19 | 5 37·97 |
| Wed. | 7 | 9 6 50·42 | 9·566 | 16 34 26·4 | 42·03 | 1 6·11 | 5 31·58 |
| Thur. | 8 | 9 10 40·00 | 9·541 | 16 17 37·6 | 42·69 | 1 6·02 | 5 24·62 |
| Frid. | 9 | 9 14 28·99 | 9·517 | 16 0 33·1 | 43·33 | 1 5·94 | 5 17·08 |
| Sat. | 10 | 9 18 17·40 | 9·493 | 15 43 13·1 | 43·97 | 1 5·85 | 5 8·95 |
| *Sun.* | 11 | 9 22 5·23 | 9·469 | 15 25 37·9 | 44·58 | 1 5·77 | 5 0·25 |
| Mon. | 12 | 9 25 52·48 | 9·445 | 15 7 47·9 | 45·19 | 1 5·69 | 4 50·98 |
| Tues. | 13 | 9 29 39·16 | 9·422 | 14 49 43·4 | 45·78 | 1 5·61 | 4 41·14 |
| Wed. | 14 | 9 33 25·28 | 9·398 | 14 31 24·7 | 46·35 | 1 5·53 | 4 30·73 |
| Thur. | 15 | 9 37 10·83 | 9·375 | 14 12 52·2 | 46·92 | 1 5·45 | 4 19·76 |
| Frid. | 16 | 9 40 55·83 | 9·353 | 13 54 6·2 | 47·46 | 1 5·37 | 4 8·24 |
| Sat. | 17 | 9 44 40·30 | 9·330 | 13 35 7·1 | 48·00 | 1 5·30 | 3 56·18 |
| *Sun.* | 18 | 9 48 24·23 | 9·309 | 13 15 55·0 | 48·52 | 1 5·23 | 3 43·59 |
| Mon. | 19 | 9 52 7·64 | 9·288 | 12 56 30·5 | 49·03 | 1 5·16 | 3 30·48 |
| Tues. | 20 | 9 55 50·55 | 9·267 | 12 36 53·8 | 49·53 | 1 5·09 | 3 16·86 |
| Wed. | 21 | 9 59 32·96 | 9·247 | 12 17 5·1 | 50·01 | 1 5·02 | 3 2·75 |
| Thur. | 22 | 10 3 14·88 | 9·228 | 11 57 4·9 | 50·48 | 1 4·95 | 2 48·15 |
| Frid. | 23 | 10 6 56·35 | 9·209 | 11 36 53·4 | 50·94 | 1 4·88 | 2 33·10 |
| Sat. | 24 | 10 10 37·36 | 9·191 | 11 16 30·9 | 51·38 | 1 4·82 | 2 17·60 |
| *Sun.* | 25 | 10 14 17·94 | 9·174 | 10 55 57·7 | 51·82 | 1 4·76 | 2 1·68 |
| Mon. | 26 | 10 17 58·12 | 9·157 | 10 35 14·1 | 52·24 | 1 4·70 | 1 45·35 |
| Tues. | 27 | 10 21 37·89 | 9·142 | 10 14 20·3 | 52·65 | 1 4·64 | 1 28·62 |
| Wed. | 28 | 10 25 17·30 | 9·127 | 9 53 16·6 | 53·05 | 1 4·58 | 1 11·52 |
| Thur. | 29 | 10 28 56·35 | 9·113 | 9 32 3·4 | 53·43 | 1 4·53 | 0 54·07 |
| Frid. | 30 | 10 32 35·06 | 9·100 | 9 10 41·0 | 53·81 | 1 4·48 | 0 36·27 |
| Sat. | 31 | 10 36 13·46 | 9·087 | 8 49 9·6 | 54·17 | 1 4·43 | 0 18·16 |
| *Sun.* | 32 | 10 39 51·55 | | N. 8 27 29·5 | | 1 4·38 | 0 0·25 |

* *Mean* Time of the Semidiameter passing may be found by subtracting 0ˢ·18 from the *Sidere*

## AT MEAN NOON.

| | Day of the Month. | THE SUN'S Apparent Right Ascension. | Apparent Declination. | Semidiam.* | Equation of Time, to be subt. from / added to Mean Time. | Sidereal Time. |
|---|---|---|---|---|---|---|
| | | h m s | ° ′ ″ | ′ ″ | m s | h m s |
| ur. | 1 | 8 43 39·73 | N. 18 9 33·1 | 15 47·0 | 6 1·16 | 8 37 38·57 |
| id. | 2 | 8 47 32·82 | 17 54 25·8 | 15 47·1 | 5 57·69 | 8 41 35·13 |
| t. | 3 | 8 51 25·33 | 17 39 0·8 | 15 47·3 | 5 53·64 | 8 45 31·69 |
| n. | 4 | 8 55 17·26 | 17 23 18·4 | 15 47·4 | 5 49·01 | 8 49 28·25 |
| on. | 5 | 8 59 8·60 | 17 7 19·0 | 15 47·5 | 5 43·79 | 8 53 24·81 |
| es. | 6 | 9 2 59·36 | 16 51 2·8 | 15 47·7 | 5 37·99 | 8 57 21·37 |
| ed. | 7 | 9 6 49·54 | 16 34 30·2 | 15 47·8 | 5 31·61 | 9 1 17·93 |
| ur. | 8 | 9 10 39·14 | 16 17 41·5 | 15 48·0 | 5 24·65 | 9 5 14·49 |
| id. | 9 | 9 14 28·15 | 16 0 36·9 | 15 48·1 | 5 17·10 | 9 9 11·05 |
| t. | 10 | 9 18 16·58 | 15 43 16·8 | 15 48·3 | 5 8·98 | 9 13 7·60 |
| n. | 11 | 9 22 4·44 | 15 25 41·6 | 15 48·4 | 5 0·28 | 9 17 4·16 |
| on. | 12 | 9 25 51·72 | 15 7 51·5 | 15 48·6 | 4 51·01 | 9 21 0·71 |
| es. | 13 | 9 29 38·43 | 14 49 46·9 | 15 48·8 | 4 41·17 | 9 24 57·26 |
| ed. | 14 | 9 33 24·57 | 14 31 28·2 | 15 49·0 | 4 30·76 | 9 28 53·81 |
| ur. | 15 | 9 37 10·15 | 14 12 55·6 | 15 49·2 | 4 19·79 | 9 32 50·36 |
| id. | 16 | 9 40 55·19 | 13 54 9·5 | 15 49·3 | 4 8·27 | 9 36 46·92 |
| t. | 17 | 9 44 39·69 | 13 35 10·2 | 15 49·5 | 3 56·22 | 9 40 43·47 |
| n. | 18 | 9 48 23·65 | 13 15 58·0 | 15 49·7 | 3 43·62 | 9 44 40·03 |
| on. | 19 | 9 52 7·10 | 12 56 33·4 | 15 49·9 | 3 30·51 | 9 48 36·59 |
| es. | 20 | 9 55 50·04 | 12 36 56·5 | 15 50·1 | 3 16·89 | 9 52 33·15 |
| ed. | 21 | 9 59 32·48 | 12 17 7·7 | 15 50·3 | 3 2·77 | 9 56 29·71 |
| ur. | 22 | 10 3 14·45 | 11 57 7·3 | 15 50·5 | 2 48·18 | 10 0 26·27 |
| id. | 23 | 10 6 55·96 | 11 36 55·5 | 15 50·7 | 2 33·13 | 10 4 22·83 |
| t. | 24 | 10 10 37·01 | 11 16 32·8 | 15 51·0 | 2 17·63 | 10 8 19·38 |
| n. | 25 | 10 14 17·63 | 10 55 59·4 | 15 51·2 | 2 1·70 | 10 12 15·93 |
| on. | 26 | 10 17 57·85 | 10 35 15·6 | 15 51·4 | 1 45·37 | 10 16 12·48 |
| es. | 27 | 10 21 37·67 | 10 14 21·6 | 15 51·6 | 1 28·64 | 10 20 9·03 |
| ed. | 28 | 10 25 17·12 | 9 53 17·7 | 15 51·8 | 1 11·54 | 10 24 5·58 |
| ur. | 29 | 10 28 56·21 | 9 32 4·2 | 15 52·0 | 0 54·08 | 10 28 2·13 |
| id. | 30 | 10 32 34·97 | 9 10 41·5 | 15 52·2 | 0 36·28 | 10 31 58·69 |
| t. | 31 | 10 36 13·41 | 8 49 9·8 | 15 52·5 | 0 18·17 | 10 35 55·24 |
| n. | 32 | 10 39 51·56 | N. 8 27 29·5 | 15 52·7 | 0 0·24 | 10 39 51·80 |

* The Semidiameter for *Apparent* Noon may be assumed the same as that for *Mean* Noon.

## MEAN TIME.

| Day of the Month. | THE SUN'S Apparent Longitude. Noon. | THE SUN'S Apparent Latitude. Noon. | Logarithm of the Radius Vector of the Earth. Noon. | THE MOON'S Semidiameter. Noon. | THE MOON'S Semidiameter. Midnight. | THE MOON'S Horizontal Par Noon. | THE MOON'S Horizontal Par Mi |
|---|---|---|---|---|---|---|---|
| | ° ′ ″ | ″ | | ′ ″ | ′ ″ | ′ ″ | ′ |
| 1 | 128 29 10·2 | N.0·45 | 0·0063313 | 16 9·5 | 16 9·3 | 59 17·8 | 59 |
| 2 | 129 26 36·4 | 0·55 | 0·0062746 | 16 8·8 | 16 7·9 | 59 15·1 | 59 |
| 3 | 130 24 3·9 | 0·63 | 0·0062162 | 16 6·8 | 16 5·3 | 59 7·8 | 59 |
| 4 | 131 21 32·7 | 0·68 | 0·0061558 | 16 3·6 | 16 1·5 | 58 56·0 | 58 |
| 5 | 132 19 2·7 | 0·69 | 0·0060934 | 15 59·1 | 15 56·3 | 58 39·5 | 58 |
| 6 | 133 16 34·0 | 0·68 | 0·0060288 | 15 53·2 | 15 49·8 | 58 17·9 | 58 |
| 7 | 134 14 6·6 | 0·64 | 0·0059620 | 15 46·1 | 15 42·0 | 57 51·8 | 57 |
| 8 | 135 11 40·5 | 0·57 | 0·0058931 | 15 37·7 | 15 33·3 | 57 21·2 | 57 |
| 9 | 136 9 15·5 | 0·47 | 0·0058218 | 15 28·6 | 15 23·9 | 56 47·7 | 56 |
| 10 | 137 6 51·6 | 0·36 | 0·0057482 | 15 19·1 | 15 14·4 | 56 13·0 | 55 |
| 11 | 138 4 28·9 | 0·24 | 0·0056725 | 15 9·9 | 15 5·5 | 55 38·9 | 55 |
| 12 | 139 2 7·3 | N.0·11 | 0·0055944 | 15 1·4 | 14 57·7 | 55 8·0 | 54 |
| 13 | 139 59 46·8 | S.0·01 | 0·0055142 | 14 54·4 | 14 51·5 | 54 42·1 | 54 |
| 14 | 140 57 27·3 | 0·13 | 0·0054320 | 14 49·3 | 14 47·6 | 54 23·4 | 54 |
| 15 | 141 55 8·8 | 0·23 | 0·0053478 | 14 46·5 | 14 46·1 | 54 13·2 | 54 |
| 16 | 142 52 51·5 | 0·31 | 0·0052620 | 14 46·3 | 14 47·3 | 54 12·5 | 54 |
| 17 | 143 50 35·3 | 0·36 | 0·0051745 | 14 48·9 | 14 51·3 | 54 22·2 | 54 |
| 18 | 144 48 20·1 | 0·39 | 0·0050854 | 14 54·4 | 14 58·1 | 54 42·1 | 54 |
| 19 | 145 46 6·0 | 0·39 | 0·0049949 | 15 2·4 | 15 7·3 | 55 11·6 | 55 |
| 20 | 146 43 53·2 | 0·36 | 0·0049033 | 15 12·7 | 15 18·4 | 55 49·3 | 56 |
| 21 | 147 41 41·5 | 0·29 | 0·0048105 | 15 24·5 | 15 30·8 | 56 32·8 | 56 |
| 22 | 148 39 31·0 | 0·20 | 0·0047168 | 15 37·3 | 15 43·6 | 57 19·5 | 57 |
| 23 | 149 37 22·0 | S.0·09 | 0·0046224 | 15 49·8 | 15 55·8 | 58 5·5 | 58 |
| 24 | 150 35 14·2 | N.0·04 | 0·0045272 | 16 1·3 | 16 6·3 | 58 47·7 | 59 |
| 25 | 151 33 7·9 | 0·17 | 0·0044312 | 16 10·6 | 16 14·2 | 59 21·9 | 59 |
| 26 | 152 31 3·3 | 0·31 | 0·0043344 | 16 17·1 | 16 19·1 | 59 45·7 | 59 |
| 27 | 153 29 0·3 | 0·44 | 0·0042369 | 16 20·3 | 16 20·7 | 59 57·6 | 59 |
| 28 | 154 26 59·1 | 0·56 | 0·0041386 | 16 20·3 | 16 19·1 | 59 57·5 | 59 |
| 29 | 155 24 59·7 | 0·67 | 0·0040395 | 16 17·4 | 16 15·0 | 59 46·7 | 59 |
| 30 | 156 23 2·2 | 0·75 | 0·0039394 | 16 12·2 | 16 8·9 | 59 27·5 | 59 |
| 31 | 157 21 6·8 | 0·80 | 0·0038384 | 16 5·3 | 16 1·5 | 59 2·5 | 58 |
| 32 | 158 19 13·4 | N.0·82 | 0·0037364 | 15 57·7 | 15 53·6 | 58 34·4 | 58 |

## MEAN TIME.

| Day of the Week | Day of the Month. | THE MOON'S Longitude. Noon. | Longitude. Midnight. | Latitude. Noon. | Latitude. Midnight. | Age. Noon. | Meridian Passage. |
|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | ° ′ ″ | ° ′ ″ | ° ′ ″ | d | h m |
| ur. | 1 | 26 27 26·0 | 33 33 5·2 | N.3 20 24·0 | N.3 48 18·4 | 21·5 | 17 31·9 |
| id. | 2 | 40 38 54·6 | 47 44 40·8 | 4 12 42·2 | 4 33 13·4 | 22·5 | 18 26·6 |
| t. | 3 | 54 50 8·7 | 61 55 1·3 | 4 49 32·3 | 5 1 24·8 | 23·5 | 19 25·0 |
| n. | 4 | 68 58 59·7 | 76 1 45·5 | 5 8 41·0 | 5 11 15·8 | 24·5 | 20 26·3 |
| on. | 5 | 83 2 56·2 | 90 2 9·8 | 5 9 9·9 | 5 2 28·5 | 25·5 | 21 28·0 |
| es. | 6 | 96 59 2·2 | 103 53 11·4 | 4 51 21·4 | 4 36 3·6 | 26·5 | 22 27·7 |
| ed. | 7 | 110 44 13·8 | 117 31 49·9 | 4 16 53·9 | 3 54 13·9 | 27·5 | 23 23·4 |
| ur. | 8 | 124 15 40·3 | 130 55 30·7 | 3 28 29·4 | 3 0 7·1 | 28·5 | ♂ |
| id. | 9 | 137 31 8·0 | 144 2 26·0 | 2 29 35·6 | 1 57 23·9 | 0·1 | 0 14·4 |
| t. | 10 | 150 29 20·2 | 156 51 53·4 | 1 24 0·9 | N.0 49 55·2 | 1·1 | 1 1·0 |
| n. | 11 | 163 10 11·5 | 169 24 24·9 | N.0 15 33·0 | S.0 18 40·0 | 2·1 | 1 44·3 |
| on. | 12 | 175 34 48·5 | 181 41 41·9 | S.0 52 20·2 | 1 25 6·6 | 3·1 | 2 25·4 |
| es. | 13 | 187 45 27·9 | 193 46 32·4 | 1 56 39·1 | 2 26 40·5 | 4·1 | 3 5·5 |
| ed. | 14 | 199 45 24·1 | 205 42 34·6 | 2 54 54·8 | 3 21 7·7 | 5·1 | 3 45·8 |
| ur. | 15 | 211 38 36·6 | 217 34 5·2 | 3 45 5·6 | 4 6 36·7 | 6·1 | 4 27·3 |
| id. | 16 | 223 29 35·1 | 229 25 43·1 | 4 25 29·5 | 4 41 34·2 | 7·1 | 5 11·1 |
| t. | 17 | 235 23 5·1 | 241 22 17·1 | 4 54 40·3 | 5 4 39·0 | 8·1 | 5 57·8 |
| n. | 18 | 247 23 53·6 | 253 28 28·1 | 5 11 20·2 | 5 14 37·1 | 9·1 | 6 47·9 |
| on. | 19 | 259 36 32·4 | 265 48 35·7 | 5 14 21·1 | 5 10 26·3 | 10·1 | 7 41·0 |
| es. | 20 | 272 5 2·8 | 278 26 16·6 | 5 2 47·4 | 4 51 21·1 | 11·1 | 8 36·0 |
| ed. | 21 | 284 52 33·5 | 291 24 5·3 | 4 36 6·2 | 4 17 4·8 | 12·1 | 9 31·6 |
| ur. | 22 | 298 0 59·1 | 304 43 13·7 | 3 54 22·8 | 3 28 9·3 | 13·1 | 10 26·1 |
| id. | 23 | 311 30 43·1 | 318 23 15·3 | 2 58 39·0 | 2 26 10·9 | 14·1 | 11 18·7 |
| t. | 24 | 325 20 30·7 | 332 22 5·4 | 1 51 9·7 | S.1 14 4·4 | 15·1 | 12 9·2 |
| n. | 25 | 339 27 29·3 | 346 36 8·7 | S.0 35 29·3 | N.0 3 57·7 | 16·1 | 12 58·3 |
| on. | 26 | 353 47 26·7 | 1 0 44·8 | N.0 43 36·8 | 1 22 45·8 | 17·1 | 13 46·8 |
| es. | 27 | 8 15 22·6 | 15 30 40·9 | 2 0 42·3 | 2 36 45·5 | 18·1 | 14 36·2 |
| ed. | 28 | 22 46 1·4 | 30 0 47·7 | 3 10 17·2 | 3 40 42·7 | 19·1 | 15 27·6 |
| hur. | 29 | 37 14 28·5 | 44 26 32·7 | 4 7 32·3 | 4 30 20·3 | 20·1 | 16 22·0 |
| rid. | 30 | 51 36 35·8 | 58 44 15·9 | 4 48 48·1 | 5 2 41·8 | 21·1 | 17 19·8 |
| t. | 31 | 65 49 15·3 | 72 51 18·6 | 5 11 53·3 | 5 16 19·3 | 22·1 | 18 20·2 |
| n. | 32 | 79 50 15·3 | 86 45 56·0 | N.5 16 2·4 | N.5 11 8·8 | 23·1 | 19 21·4 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *THURSDAY* 1. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 1 33 10 ·62 | N.13 19 42 ·0 | 152 ·20 |
| 1 | 1 35 22 ·45 | 13 34 55 ·2 | 151 ·47 |
| 2 | 1 37 34 ·55 | 13 50 4 ·0 | 150 ·73 |
| 3 | 1 39 46 ·95 | 14 5 8 ·4 | 149 ·98 |
| 4 | 1 41 59 ·63 | 14 20 8 ·3 | 149 ·20 |
| 5 | 1 44 12 ·60 | 14 35 3 ·5 | 148 ·42 |
| 6 | 1 46 25 ·88 | 14 49 54 ·0 | 147 ·60 |
| 7 | 1 48 39 ·45 | 15 4 39 ·6 | 146 ·78 |
| 8 | 1 50 53 ·33 | 15 19 20 ·3 | 145 ·95 |
| 9 | 1 53 7 ·52 | 15 33 56 ·0 | 145 ·10 |
| 10 | 1 55 22 ·02 | 15 48 26 ·6 | 144 ·23 |
| 11 | 1 57 36 ·83 | 16 2 52 ·0 | 143 ·33 |
| 12 | 1 59 51 ·96 | 16 17 12 ·0 | 142 ·43 |
| 13 | 2 2 7 ·41 | 16 31 26 ·6 | 141 ·52 |
| 14 | 2 4 23 ·19 | 16 45 35 ·7 | 140 ·57 |
| 15 | 2 6 39 ·29 | 16 59 39 ·1 | 139 ·62 |
| 16 | 2 8 55 ·73 | 17 13 36 ·8 | 138 ·67 |
| 17 | 2 11 12 ·50 | 17 27 28 ·8 | 137 ·67 |
| 18 | 2 13 29 ·61 | 17 41 14 ·8 | 136 ·67 |
| 19 | 2 15 47 ·05 | 17 54 54 ·8 | 135 ·65 |
| 20 | 2 18 4 ·84 | 18 8 28 ·7 | 134 ·62 |
| 21 | 2 20 22 ·97 | 18 21 56 ·4 | 133 ·55 |
| 22 | 2 22 41 ·45 | 18 35 17 ·7 | 132 ·50 |
| 23 | 2 25 0 ·28 | N.18 48 32 ·7 | 131 ·42 |
| | *FRIDAY* 2. | | |
| 0 | 2 27 19 ·46 | N.19 1 41 ·2 | 130 ·32 |
| 1 | 2 29 38 ·99 | 19 14 43 ·1 | 129 ·20 |
| 2 | 2 31 58 ·88 | 19 27 38 ·3 | 128 ·08 |
| 3 | 2 34 19 ·12 | 19 40 26 ·8 | 126 ·92 |
| 4 | 2 36 39 ·73 | 19 53 8 ·3 | 125 ·75 |
| 5 | 2 39 0 ·69 | 20 5 42 ·8 | 124 ·57 |
| 6 | 2 41 22 ·01 | 20 18 10 ·2 | 123 ·38 |
| 7 | 2 43 43 ·70 | 20 30 30 ·5 | 122 ·15 |
| 8 | 2 46 5 ·75 | 20 42 43 ·4 | 120 ·93 |
| 9 | 2 48 28 ·16 | 20 54 49 ·0 | 119 ·68 |
| 10 | 2 50 50 ·93 | 21 6 47 ·1 | 118 ·42 |
| 11 | 2 53 14 ·08 | 21 18 37 ·6 | 117 ·13 |
| 12 | 2 55 37 ·58 | 21 30 20 ·4 | 115 ·83 |
| 13 | 2 58 1 ·45 | 21 41 55 ·4 | 114 ·53 |
| 14 | 3 0 25 ·69 | 21 53 22 ·6 | 113 ·20 |
| 15 | 3 2 50 ·29 | 22 4 41 ·8 | 111 ·85 |
| 16 | 3 5 15 ·26 | 22 15 52 ·9 | 110 ·50 |
| 17 | 3 7 40 ·59 | 22 26 55 ·9 | 109 ·12 |
| 18 | 3 10 6 ·28 | 22 37 50 ·6 | 107 ·72 |
| 19 | 3 12 32 ·33 | 22 48 36 ·9 | 106 ·33 |
| 20 | 3 14 58 ·75 | 22 59 14 ·9 | 104 ·88 |
| 21 | 3 17 25 ·52 | 23 9 44 ·2 | 103 ·47 |
| 22 | 3 19 52 ·65 | 23 20 5 ·0 | 102 ·02 |
| 23 | 3 22 20 ·14 | 23 30 17 ·1 | 100 ·53 |
| 24 | 3 24 47 ·97 | N.23 40 20 ·3 | |

| Hour. | Right Ascension. | Declination. |
|---|---|---|
| | *SATURDAY* 3. | |
| | h m s | ° ′ ″ |
| 0 | 3 24 47 ·97 | N.23 40 20 ·3 |
| 1 | 3 27 16 ·16 | 23 50 14 ·7 |
| 2 | 3 29 44 ·70 | 24 0 0 ·0 |
| 3 | 3 32 13 ·59 | 24 9 36 ·3 |
| 4 | 3 34 42 ·82 | 24 19 3 ·5 |
| 5 | 3 37 12 ·39 | 24 28 21 ·3 |
| 6 | 3 39 42 ·29 | 24 37 29 ·9 |
| 7 | 3 42 12 ·53 | 24 46 29 ·0 |
| 8 | 3 44 43 ·10 | 24 55 18 ·7 |
| 9 | 3 47 14 ·00 | 25 3 58 ·8 |
| 10 | 3 49 45 ·21 | 25 12 29 ·2 |
| 11 | 3 52 16 ·74 | 25 20 49 ·8 |
| 12 | 3 54 48 ·59 | 25 29 0 ·7 |
| 13 | 3 57 20 ·74 | 25 37 1 ·6 |
| 14 | 3 59 53 ·20 | 25 44 52 ·6 |
| 15 | 4 2 25 ·96 | 25 52 33 ·5 |
| 16 | 4 4 59 ·01 | 26 0 4 ·3 |
| 17 | 4 7 32 ·34 | 26 7 24 ·9 |
| 18 | 4 10 5 ·96 | 26 14 35 ·2 |
| 19 | 4 12 39 ·85 | 26 21 35 ·2 |
| 20 | 4 15 14 ·02 | 26 28 24 ·7 |
| 21 | 4 17 48 ·44 | 26 35 3 ·8 |
| 22 | 4 20 23 ·13 | 26 41 32 ·4 |
| 23 | 4 22 58 ·06 | N.26 47 50 ·4 |
| | *SUNDAY* 4. | |
| 0 | 4 25 33 ·24 | N.26 53 57 ·7 |
| 1 | 4 28 8 ·66 | 26 59 54 ·3 |
| 2 | 4 30 44 ·31 | 27 5 40 ·1 |
| 3 | 4 33 20 ·18 | 27 11 15 ·1 |
| 4 | 4 35 56 ·26 | 27 16 39 ·2 |
| 5 | 4 38 32 ·55 | 27 21 52 ·3 |
| 6 | 4 41 9 ·03 | 27 26 54 ·5 |
| 7 | 4 43 45 ·71 | 27 31 45 ·6 |
| 8 | 4 46 22 ·56 | 27 36 25 ·7 |
| 9 | 4 48 59 ·59 | 27 40 54 ·6 |
| 10 | 4 51 36 ·77 | 27 45 12 ·4 |
| 11 | 4 54 14 ·12 | 27 49 19 ·0 |
| 12 | 4 56 51 ·61 | 27 53 14 ·3 |
| 13 | 4 59 29 ·24 | 27 56 58 ·4 |
| 14 | 5 2 6 ·99 | 28 0 31 ·1 |
| 15 | 5 4 44 ·86 | 28 3 52 ·5 |
| 16 | 5 7 22 ·84 | 28 7 2 ·6 |
| 17 | 5 10 0 ·92 | 28 10 1 ·2 |
| 18 | 5 12 39 ·09 | 28 12 48 ·5 |
| 19 | 5 15 17 ·33 | 28 15 24 ·3 |
| 20 | 5 17 55 ·64 | 28 17 48 ·6 |
| 21 | 5 20 34 ·01 | 28 20 1 ·5 |
| 22 | 5 23 12 ·44 | 28 22 |
| 23 | 5 25 50 ·90 | 28 [illegible] |
| 24 | 5 28 29 ·39 | N.28 [illegible] |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *MONDAY* 5. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 5 28 29 ·39 | N.28 25 31 ·2 | 14 ·48 |
| 1 | 5 31 7 ·90 | 28 26 58 ·1 | 12 ·55 |
| 2 | 5 33 46 ·43 | 28 28 13 ·4 | 10 ·63 |
| 3 | 5 36 24 ·95 | 28 29 17 ·2 | 8 ·72 |
| 4 | 5 39 3 ·45 | 28 30 9 ·5 | 6 ·80 |
| 5 | 5 41 41 ·93 | 28 30 50 ·3 | 4 ·88 |
| 6 | 5 44 20 ·39 | 28 31 19 ·6 | 2 ·95 |
| 7 | 5 46 58 ·79 | 28 31 37 ·3 | 1 ·05 |
| 8 | 5 49 37 ·15 | 28 31 43 ·6 | 0 ·87 |
| 9 | 5 52 15 ·43 | 28 31 38 ·4 | 2 ·78 |
| 10 | 5 54 53 ·65 | 28 31 21 ·7 | 4 ·68 |
| 11 | 5 57 31 ·78 | 28 30 53 ·6 | 6 ·60 |
| 12 | 6 0 9 ·81 | 28 30 14 ·0 | 8 ·50 |
| 13 | 6 2 47 ·72 | 28 29 23 ·0 | 10 ·40 |
| 14 | 6 5 25 ·52 | 28 28 20 ·6 | 12 ·28 |
| 15 | 6 8 3 ·19 | 28 27 6 ·9 | 14 ·18 |
| 16 | 6 10 40 ·73 | 28 25 41 ·8 | 16 ·07 |
| 17 | 6 13 18 ·12 | 28 24 5 ·4 | 17 ·93 |
| 18 | 6 15 55 ·36 | 28 22 17 ·8 | 19 ·80 |
| 19 | 6 18 32 ·44 | 28 20 19 ·0 | 21 ·68 |
| 20 | 6 21 9 ·35 | 28 18 8 ·9 | 23 ·52 |
| 21 | 6 23 46 ·07 | 28 15 47 ·8 | 25 ·38 |
| 22 | 6 26 22 ·61 | 28 13 15 ·5 | 27 ·23 |
| 23 | 6 28 58 ·95 | N.28 10 32 ·1 | 29 ·05 |
| | *TUESDAY* 6. | | |
| 0 | 6 31 35 ·09 | N.28 7 37 ·8 | 30 ·88 |
| 1 | 6 34 10 ·98 | 28 4 32 ·5 | 32 ·70 |
| 2 | 6 36 46 ·64 | 28 1 16 ·3 | 34 ·52 |
| 3 | 6 39 22 ·05 | 27 57 49 ·2 | 36 ·30 |
| 4 | 6 41 57 ·22 | 27 54 11 ·4 | 38 ·10 |
| 5 | 6 44 32 ·13 | 27 50 22 ·8 | 39 ·88 |
| 6 | 6 47 6 ·78 | 27 46 23 ·5 | 41 ·65 |
| 7 | 6 49 41 ·15 | 27 42 13 ·6 | 43 ·40 |
| 8 | 6 52 15 ·24 | 27 37 53 ·2 | 45 ·17 |
| 9 | 6 54 49 ·04 | 27 33 22 ·2 | 46 ·88 |
| 10 | 6 57 22 ·54 | 27 28 40 ·9 | 48 ·62 |
| 11 | 6 59 55 ·74 | 27 23 49 ·2 | 50 ·33 |
| 12 | 7 2 28 ·62 | 27 18 47 ·2 | 52 ·03 |
| 13 | 7 5 1 ·18 | 27 13 35 ·0 | 53 ·72 |
| 14 | 7 7 33 ·41 | 27 8 12 ·7 | 55 ·40 |
| 15 | 7 10 5 ·30 | 27 2 40 ·3 | 57 ·07 |
| 16 | 7 12 36 ·86 | 26 56 57 ·9 | 58 ·72 |
| 17 | 7 15 8 ·06 | 26 51 5 ·6 | 60 ·35 |
| 18 | 7 17 38 ·91 | 26 45 3 ·5 | 61 ·97 |
| 19 | 7 20 9 ·41 | 26 38 51 ·7 | 63 ·60 |
| 20 | 7 22 39 ·53 | 26 32 30 ·1 | 65 ·18 |
| 21 | 7 25 9 ·29 | 26 25 59 ·0 | 66 ·77 |
| 22 | 7 27 38 ·67 | 26 19 18 ·4 | 68 ·33 |
| 23 | 7 30 7 ·67 | 26 12 28 ·4 | 69 ·90 |
| 24 | 7 32 36 ·28 | N.26 5 29 ·0 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *WEDNESDAY* 7. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 7 32 36 ·28 | N.26 5 29 ·0 | 71 ·43 |
| 1 | 7 35 4 ·50 | 25 58 20 ·4 | 72 ·97 |
| 2 | 7 37 32 ·33 | 25 51 2 ·6 | 74 ·48 |
| 3 | 7 39 59 ·75 | 25 43 35 ·7 | 75 ·97 |
| 4 | 7 42 26 ·77 | 25 35 59 ·9 | 77 ·45 |
| 5 | 7 44 53 ·38 | 25 28 15 ·2 | 78 ·92 |
| 6 | 7 47 19 ·58 | 25 20 21 ·7 | 80 ·35 |
| 7 | 7 49 45 ·36 | 25 12 19 ·6 | 81 ·80 |
| 8 | 7 52 10 ·72 | 25 4 8 ·8 | 83 ·20 |
| 9 | 7 54 35 ·66 | 24 55 49 ·6 | 84 ·62 |
| 10 | 7 57 0 ·17 | 24 47 21 ·9 | 86 ·00 |
| 11 | 7 59 24 ·25 | 24 38 45 ·9 | 87 ·37 |
| 12 | 8 1 47 ·90 | 24 30 1 ·7 | 88 ·72 |
| 13 | 8 4 11 ·12 | 24 21 9 ·4 | 90 ·05 |
| 14 | 8 6 33 ·89 | 24 12 9 ·1 | 91 ·37 |
| 15 | 8 8 56 ·23 | 24 3 0 ·9 | 92 ·67 |
| 16 | 8 11 18 ·13 | 23 53 44 ·9 | 93 ·97 |
| 17 | 8 13 39 ·58 | 23 44 21 ·1 | 95 ·22 |
| 18 | 8 16 0 ·60 | 23 34 49 ·8 | 96 ·48 |
| 19 | 8 18 21 ·16 | 23 25 10 ·9 | 97 ·72 |
| 20 | 8 20 41 ·29 | 23 15 24 ·6 | 98 ·95 |
| 21 | 8 23 0 ·97 | 23 5 30 ·9 | 100 ·15 |
| 22 | 8 25 20 ·20 | 22 55 30 ·0 | 101 ·33 |
| 23 | 8 27 38 ·98 | N.22 45 22 ·0 | 102 ·50 |
| | *THURSDAY* 8. | | |
| 0 | 8 29 57 ·31 | N.22 35 7 ·0 | 103 ·67 |
| 1 | 8 32 15 ·20 | 22 24 45 ·0 | 104 ·80 |
| 2 | 8 34 32 ·64 | 22 14 16 ·2 | 105 ·92 |
| 3 | 8 36 49 ·62 | 22 3 40 ·7 | 107 ·03 |
| 4 | 8 39 6 ·17 | 21 52 58 ·5 | 108 ·10 |
| 5 | 8 41 22 ·26 | 21 42 9 ·9 | 109 ·20 |
| 6 | 8 43 37 ·90 | 21 31 14 ·7 | 110 ·23 |
| 7 | 8 45 53 ·10 | 21 20 13 ·3 | 111 ·28 |
| 8 | 8 48 7 ·86 | 21 9 5 ·6 | 112 ·28 |
| 9 | 8 50 22 ·16 | 20 57 51 ·9 | 113 ·32 |
| 10 | 8 52 36 ·02 | 20 46 32 ·0 | 114 ·28 |
| 11 | 8 54 49 ·44 | 20 35 6 ·3 | 115 ·27 |
| 12 | 8 57 2 ·42 | 20 23 34 ·7 | 116 ·22 |
| 13 | 8 59 14 ·95 | 20 11 57 ·4 | 117 ·15 |
| 14 | 9 1 27 ·05 | 20 0 14 ·5 | 118 ·08 |
| 15 | 9 3 38 ·71 | 19 48 26 ·0 | 118 ·98 |
| 16 | 9 5 49 ·94 | 19 36 32 ·1 | 119 ·87 |
| 17 | 9 8 0 ·73 | 19 24 32 ·9 | 120 ·75 |
| 18 | 9 10 11 ·09 | 19 12 28 ·4 | 121 ·60 |
| 19 | 9 12 21 ·02 | 19 0 18 ·8 | 122 ·45 |
| 20 | 9 14 30 ·53 | 18 48 4 ·1 | 123 ·27 |
| 21 | 9 16 39 ·62 | 18 35 44 ·5 | 124 ·08 |
| 22 | 9 18 48 ·28 | 18 23 20 ·0 | 124 ·88 |
| 23 | 9 20 56 ·53 | 18 10 50 ·7 | 125 ·67 |
| 24 | 9 23 4 ·36 | N.17 58 16 ·7 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *FRIDAY* 9. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 9 23 4 ·36 | N.17 58 16 ·7 | 126 ·43 |
| 1 | 9 25 11 ·78 | 17 45 38 ·1 | 127 ·17 |
| 2 | 9 27 18 ·80 | 17 32 55 ·1 | 127 ·92 |
| 3 | 9 29 25 ·40 | 17 20 7 ·6 | 128 ·62 |
| 4 | 9 31 31 ·60 | 17 7 15 ·9 | 129 ·33 |
| 5 | 9 33 37 ·40 | 16 54 19 ·9 | 130 ·02 |
| 6 | 9 35 42 ·81 | 16 41 19 ·8 | 130 ·70 |
| 7 | 9 37 47 ·82 | 16 28 15 ·6 | 131 ·33 |
| 8 | 9 39 52 ·44 | 16 15 7 ·6 | 132 ·00 |
| 9 | 9 41 56 ·67 | 16 1 55 ·6 | 132 ·62 |
| 10 | 9 44 0 ·52 | 15 48 39 ·9 | 133 ·23 |
| 11 | 9 46 3 ·99 | 15 35 20 ·5 | 133 ·83 |
| 12 | 9 48 7 ·08 | 15 21 57 ·5 | 134 ·42 |
| 13 | 9 50 9 ·80 | 15 8 31 ·0 | 134 ·98 |
| 14 | 9 52 12 ·15 | 14 55 1 ·1 | 135 ·55 |
| 15 | 9 54 14 ·13 | 14 41 27 ·8 | 136 ·08 |
| 16 | 9 56 15 ·75 | 14 27 51 ·3 | 136 ·60 |
| 17 | 9 58 17 ·01 | 14 14 11 ·7 | 137 ·13 |
| 18 | 10 0 17 ·92 | 14 0 28 ·9 | 137 ·63 |
| 19 | 10 2 18 ·47 | 13 46 43 ·1 | 138 ·12 |
| 20 | 10 4 18 ·68 | 13 32 54 ·4 | 138 ·58 |
| 21 | 10 6 18 ·56 | 13 19 2 ·9 | 139 ·05 |
| 22 | 10 8 18 ·09 | 13 5 8 ·6 | 139 ·50 |
| 23 | 10 10 17 ·30 | N.12 51 11 ·6 | 139 ·93 |
| | *SATURDAY* 10. | | |
| 0 | 10 12 16 ·17 | N.12 37 12 ·0 | 140 ·35 |
| 1 | 10 14 14 ·72 | 12 23 9 ·9 | 140 ·77 |
| 2 | 10 16 12 ·95 | 12 9 5 ·3 | 141 ·15 |
| 3 | 10 18 10 ·87 | 11 54 58 ·4 | 141 ·55 |
| 4 | 10 20 8 ·47 | 11 40 49 ·1 | 141 ·90 |
| 5 | 10 22 5 ·77 | 11 26 37 ·7 | 142 ·28 |
| 6 | 10 24 2 ·76 | 11 12 24 ·0 | 142 ·62 |
| 7 | 10 25 59 ·46 | 10 58 8 ·3 | 142 ·93 |
| 8 | 10 27 55 ·87 | 10 43 50 ·7 | 143 ·28 |
| 9 | 10 29 51 ·98 | 10 29 31 ·0 | 143 ·58 |
| 10 | 10 31 47 ·81 | 10 15 9 ·5 | 143 ·87 |
| 11 | 10 33 43 ·36 | 10 0 46 ·3 | 144 ·17 |
| 12 | 10 35 38 ·63 | 9 46 21 ·3 | 144 ·43 |
| 13 | 10 37 33 ·63 | 9 31 54 ·7 | 144 ·70 |
| 14 | 10 39 28 ·37 | 9 17 26 ·5 | 144 ·95 |
| 15 | 10 41 22 ·84 | 9 2 56 ·8 | 145 ·20 |
| 16 | 10 43 17 ·05 | 8 48 25 ·6 | 145 ·42 |
| 17 | 10 45 11 ·01 | 8 33 53 ·1 | 145 ·63 |
| 18 | 10 47 4 ·72 | 8 19 19 ·3 | 145 ·85 |
| 19 | 10 48 58 ·19 | 8 4 44 ·2 | 146 ·03 |
| 20 | 10 50 51 ·42 | 7 50 8 ·0 | 146 ·23 |
| 21 | 10 52 44 ·41 | 7 35 30 ·6 | 146 ·40 |
| 22 | 10 54 37 ·18 | 7 20 52 ·2 | 146 ·55 |
| 23 | 10 56 29 ·71 | 7 6 12 ·9 | 146 ·72 |
| 24 | 10 58 22 ·03 | N. 6 51 32 ·6 | |

| Hour. | Right Ascension. | Declination. | Diff. D for 1 |
|---|---|---|---|
| | *SUNDAY* 11. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 10 58 22 ·03 | N.6 51 32 ·6 | 146 |
| 1 | 11 0 14 ·13 | 6 36 51 ·5 | 146 |
| 2 | 11 2 6 ·02 | 6 22 9 ·6 | 147 |
| 3 | 11 3 57 ·71 | 6 7 26 ·9 | 147 |
| 4 | 11 5 49 ·19 | 5 52 43 ·6 | 147 |
| 5 | 11 7 40 ·47 | 5 37 59 ·7 | 147 |
| 6 | 11 9 31 ·56 | 5 23 15 ·3 | 147 |
| 7 | 11 11 22 ·46 | 5 8 30 ·3 | 147 |
| 8 | 11 13 13 ·18 | 4 53 45 ·0 | 147 |
| 9 | 11 15 3 ·72 | 4 38 59 ·3 | 147 |
| 10 | 11 16 54 ·08 | 4 24 13 ·2 | 147 |
| 11 | 11 18 44 ·27 | 4 9 27 ·0 | 147 |
| 12 | 11 20 34 ·30 | 3 54 40 ·5 | 147 |
| 13 | 11 22 24 ·17 | 3 39 53 ·9 | 147 |
| 14 | 11 24 13 ·88 | 3 25 7 ·2 | 147 |
| 15 | 11 26 3 ·45 | 3 10 20 ·5 | 147 |
| 16 | 11 27 52 ·87 | 2 55 33 ·9 | 147 |
| 17 | 11 29 42 ·14 | 2 40 47 ·3 | 147 |
| 18 | 11 31 31 ·28 | 2 26 0 ·8 | 147 |
| 19 | 11 33 20 ·28 | 2 11 14 ·6 | 147 |
| 20 | 11 35 9 ·16 | 1 56 28 ·5 | 147 |
| 21 | 11 36 57 ·91 | 1 41 42 ·8 | 147 |
| 22 | 11 38 46 ·55 | 1 26 57 ·4 | 147 |
| 23 | 11 40 35 ·07 | N.1 12 12 ·4 | 147 |
| | *MONDAY* 12. | | |
| 0 | 11 42 23 ·48 | N.0 57 27 ·9 | 147 |
| 1 | 11 44 11 ·79 | 0 42 43 ·8 | 147 |
| 2 | 11 46 0 ·00 | 0 28 0 ·3 | 147 |
| 3 | 11 47 48 ·11 | N.0 13 17 ·4 | 147 |
| 4 | 11 49 36 ·14 | S.0 1 24 ·8 | 146 |
| 5 | 11 51 24 ·07 | 0 16 6 ·4 | 146 |
| 6 | 11 53 11 ·93 | 0 30 47 ·2 | 146 |
| 7 | 11 54 59 ·71 | 0 45 27 ·3 | 146 |
| 8 | 11 56 47 ·42 | 1 0 6 ·4 | 146 |
| 9 | 11 58 35 ·05 | 1 14 44 ·7 | 146 |
| 10 | 12 0 22 ·63 | 1 29 22 ·0 | 146 |
| 11 | 12 2 10 ·15 | 1 43 58 ·4 | 145 |
| 12 | 12 3 57 ·61 | 1 58 33 ·7 | 145 |
| 13 | 12 5 45 ·02 | 2 13 7 ·9 | 145 |
| 14 | 12 7 32 ·39 | 2 27 41 ·0 | 145 |
| 15 | 12 9 19 ·72 | 2 42 12 ·9 | 145 |
| 16 | 12 11 7 ·02 | 2 56 43 ·6 | 144 |
| 17 | 12 12 54 ·28 | 3 11 13 ·0 | 144 |
| 18 | 12 14 41 ·51 | 3 25 41 ·1 | 144 |
| 19 | 12 16 28 ·72 | 3 40 7 ·8 | 144 |
| 20 | 12 18 15 ·91 | 3 54 33 ·1 | 143 |
| 21 | 12 20 3 ·09 | 4 8 57 ·0 | 143 |
| 22 | 12 21 50 ·26 | 4 23 19 ·4 | 143 |
| 23 | 12 23 37 ·43 | 4 37 40 ·2 | 143 |
| 24 | 12 25 24 ·59 | S.4 51 59 ·5 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| ght Ascension. | Declination. | Diff. Dec. for 10m. | Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|---|---|---|
| *TUESDAY* 13. | | | | *THURSDAY* 15. | | |
| m s | ° ′ ″ | ″ | | h m s | ° ′ ″ | ″ |
| 25 24 ·59 | S. 4 51 59 ·5 | 142 ·93 | 0 | 13 52 31 ·30 | S. 15 34 20 ·8 | 121 ·52 |
| 27 11 ·76 | 5 6 17 ·1 | 142 ·67 | 1 | 13 54 23 ·58 | 15 46 29 ·9 | 120 ·90 |
| 28 58 ·93 | 5 20 33 ·1 | 142 ·38 | 2 | 13 56 16 ·06 | 15 58 35 ·3 | 120 ·27 |
| 30 46 ·12 | 5 34 47 ·4 | 142 ·08 | 3 | 13 58 8 ·75 | 16 10 36 ·9 | 119 ·63 |
| 32 33 ·33 | 5 48 59 ·9 | 141 ·78 | 4 | 14 0 1 ·65 | 16 22 34 ·7 | 118 ·98 |
| 34 20 ·55 | 6 3 10 ·6 | 141 ·47 | 5 | 14 1 54 ·76 | 16 34 28 ·6 | 118 ·32 |
| 36 7 ·81 | 6 17 19 ·4 | 141 ·17 | 6 | 14 3 48 ·08 | 16 46 18 ·5 | 117 ·67 |
| 37 55 ·09 | 6 31 26 ·4 | 140 ·83 | 7 | 14 5 41 ·63 | 16 58 4 ·5 | 117 ·00 |
| 39 42 ·40 | 6 45 31 ·4 | 140 ·52 | 8 | 14 7 35 ·40 | 17 9 46 ·5 | 116 ·32 |
| 41 29 ·76 | 6 59 34 ·5 | 140 ·17 | 9 | 14 9 29 ·39 | 17 21 24 ·4 | 115 ·63 |
| 43 17 ·16 | 7 13 35 ·5 | 139 ·83 | 10 | 14 11 23 ·61 | 17 32 58 ·2 | 114 ·95 |
| 45 4 ·60 | 7 27 34 ·5 | 139 ·48 | 11 | 14 13 18 ·07 | 17 44 27 ·9 | 114 ·23 |
| 46 52 ·10 | 7 41 31 ·4 | 139 ·12 | 12 | 14 15 12 ·76 | 17 55 53 ·3 | 113 ·53 |
| 48 39 ·65 | 7 55 26 ·1 | 138 ·77 | 13 | 14 17 7 ·69 | 18 7 14 ·5 | 112 ·80 |
| 50 27 ·26 | 8 9 18 ·7 | 138 ·38 | 14 | 14 19 2 ·86 | 18 18 31 ·3 | 112 ·10 |
| 52 14 ·94 | 8 23 9 ·0 | 138 ·00 | 15 | 14 20 58 ·27 | 18 29 43 ·9 | 111 ·35 |
| 54 2 ·68 | 8 36 57 ·0 | 137 ·63 | 16 | 14 22 53 ·94 | 18 40 52 ·0 | 110 ·60 |
| 55 50 ·50 | 8 50 42 ·8 | 137 ·22 | 17 | 14 24 49 ·85 | 18 51 55 ·6 | 109 ·87 |
| 57 38 ·40 | 9 4 26 ·1 | 136 ·83 | 18 | 14 26 46 ·01 | 19 2 54 ·8 | 109 ·12 |
| 59 26 ·37 | 9 18 7 ·1 | 136 ·42 | 19 | 14 28 42 ·44 | 19 13 49 ·5 | 108 ·33 |
| 1 14 ·43 | 9 31 45 ·6 | 136 ·02 | 20 | 14 30 39 ·12 | 19 24 39 ·5 | 107 ·57 |
| 3 2 ·59 | 9 45 21 ·7 | 135 ·58 | 21 | 14 32 36 ·06 | 19 35 24 ·9 | 106 ·78 |
| 4 50 ·83 | 9 58 55 ·2 | 135 ·17 | 22 | 14 34 33 ·27 | 19 46 5 ·6 | 106 ·00 |
| 6 39 ·17 | S. 10 12 26 ·2 | 134 ·72 | 23 | 14 36 30 ·75 | S. 19 56 41 ·6 | 105 ·20 |
| *WEDNESDAY* 14. | | | | *FRIDAY* 16. | | |
| 8 27 ·62 | S. 10 25 54 ·5 | 134 ·28 | 0 | 14 38 28 ·50 | S. 20 7 12 ·8 | 104 ·40 |
| 10 16 ·17 | 10 39 20 ·2 | 133 ·85 | 1 | 14 40 26 ·52 | 20 17 39 ·2 | 103 ·57 |
| 12 4 ·84 | 10 52 43 ·3 | 133 ·38 | 2 | 14 42 24 ·82 | 20 28 0 ·6 | 102 ·75 |
| 13 53 ·61 | 11 6 3 ·6 | 132 ·92 | 3 | 14 44 23 ·39 | 20 38 17 ·1 | 101 ·93 |
| 15 42 ·51 | 11 19 21 ·1 | 132 ·45 | 4 | 14 46 22 ·25 | 20 48 28 ·7 | 101 ·08 |
| 17 31 ·52 | 11 32 35 ·8 | 131 ·97 | 5 | 14 48 21 ·39 | 20 58 35 ·2 | 100 ·22 |
| 19 20 ·67 | 11 45 47 ·6 | 131 ·48 | 6 | 14 50 20 ·81 | 21 8 36 ·5 | 99 ·38 |
| 21 9 ·94 | 11 58 56 ·5 | 130 ·98 | 7 | 14 52 20 ·52 | 21 18 32 ·8 | 98 ·50 |
| 22 59 ·35 | 12 12 2 ·4 | 130 ·50 | 8 | 14 54 20 ·53 | 21 28 23 ·8 | 97 ·63 |
| 24 48 ·89 | 12 25 5 ·4 | 129 ·98 | 9 | 14 56 20 ·82 | 21 38 9 ·6 | 96 ·73 |
| 26 38 ·58 | 12 38 5 ·3 | 129 ·47 | 10 | 14 58 21 ·40 | 21 47 50 ·0 | 95 ·85 |
| 28 28 ·42 | 12 51 2 ·1 | 128 ·95 | 11 | 15 0 22 ·28 | 21 57 25 ·1 | 94 ·95 |
| 30 18 ·40 | 13 3 55 ·8 | 128 ·42 | 12 | 15 2 23 ·46 | 22 6 54 ·8 | 94 ·03 |
| 32 8 ·54 | 13 16 46 ·3 | 127 ·90 | 13 | 15 4 24 ·93 | 22 16 19 ·0 | 93 ·12 |
| 33 58 ·83 | 13 29 33 ·7 | 127 ·35 | 14 | 15 6 26 ·71 | 22 25 37 ·7 | 92 ·18 |
| 35 49 ·29 | 13 42 17 ·8 | 126 ·78 | 15 | 15 8 28 ·79 | 22 34 50 ·8 | 91 ·23 |
| 37 39 ·91 | 13 54 58 ·5 | 126 ·25 | 16 | 15 10 31 ·17 | 22 43 58 ·2 | 90 ·30 |
| 39 30 ·71 | 14 7 36 ·0 | 125 ·67 | 17 | 15 12 33 ·86 | 22 53 0 ·0 | 89 ·35 |
| 41 21 ·67 | 14 20 10 ·0 | 125 ·12 | 18 | 15 14 36 ·85 | 23 1 56 ·1 | 88 ·37 |
| 43 12 ·81 | 14 32 40 ·7 | 124 ·52 | 19 | 15 16 40 ·16 | 23 10 46 ·3 | 87 ·40 |
| 45 4 ·13 | 14 45 7 ·8 | 123 ·93 | 20 | 15 18 43 ·77 | 23 19 30 ·7 | 86 ·42 |
| 46 55 ·64 | 14 57 31 ·4 | 123 ·35 | 21 | 15 20 47 ·69 | 23 28 9 ·2 | 85 ·43 |
| 48 47 ·34 | 15 9 51 ·5 | 122 ·75 | 22 | 15 22 51 ·93 | 23 36 41 ·8 | 84 ·42 |
| 50 39 ·22 | 15 22 8 ·0 | 122 ·13 | 23 | 15 24 56 ·47 | 23 45 8 ·3 | [illegible] |
| 52 31 ·30 | S. 15 34 20 ·8 | | 24 | 15 27 1 ·33 | S. 23 53 28 ·[illegible] | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SATURDAY* 17. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 15 27 1 ·33 | S. 23 53 28 ·8 | 82 ·40 |
| 1 | 15 29 6 ·51 | 24 1 43 ·2 | 81 ·37 |
| 2 | 15 31 12 ·00 | 24 9 51 ·4 | 80 ·32 |
| 3 | 15 33 17 ·81 | 24 17 53 ·3 | 79 ·28 |
| 4 | 15 35 23 ·93 | 24 25 49 ·0 | 78 ·22 |
| 5 | 15 37 30 ·37 | 24 33 38 ·3 | 77 ·15 |
| 6 | 15 39 37 ·13 | 24 41 21 ·2 | 76 ·08 |
| 7 | 15 41 44 ·20 | 24 48 57 ·7 | 74 ·98 |
| 8 | 15 43 51 ·59 | 24 56 27 ·6 | 73 ·90 |
| 9 | 15 45 59 ·30 | 25 3 51 ·0 | 72 ·78 |
| 10 | 15 48 7 ·33 | 25 11 7 ·7 | 71 ·67 |
| 11 | 15 50 15 ·67 | 25 18 17 ·7 | 70 ·55 |
| 12 | 15 52 24 ·33 | 25 25 21 ·0 | 69 ·40 |
| 13 | 15 54 33 ·31 | 25 32 17 ·4 | 68 ·27 |
| 14 | 15 56 42 ·60 | 25 39 7 ·0 | 67 ·12 |
| 15 | 15 58 52 ·21 | 25 45 49 ·7 | 65 ·95 |
| 16 | 16 1 2 ·13 | 25 52 25 ·4 | 64 ·77 |
| 17 | 16 3 12 ·37 | 25 58 54 ·0 | 63 ·60 |
| 18 | 16 5 22 ·92 | 26 5 15 ·6 | 62 ·40 |
| 19 | 16 7 33 ·78 | 26 11 30 ·0 | 61 ·22 |
| 20 | 16 9 44 ·95 | 26 17 37 ·3 | 60 ·00 |
| 21 | 16 11 56 ·43 | 26 23 37 ·3 | 58 ·78 |
| 22 | 16 14 8 ·22 | 26 29 30 ·0 | 57 ·55 |
| 23 | 16 16 20 ·32 | S. 26 35 15 ·3 | 56 ·32 |
| | *SUNDAY* 18. | | |
| 0 | 16 18 32 ·72 | S. 26 40 53 ·2 | 55 ·08 |
| 1 | 16 20 45 ·43 | 26 46 23 ·7 | 53 ·83 |
| 2 | 16 22 58 ·43 | 26 51 46 ·7 | 52 ·55 |
| 3 | 16 25 11 ·74 | 26 57 2 ·0 | 51 ·30 |
| 4 | 16 27 25 ·34 | 27 2 9 ·8 | 50 ·02 |
| 5 | 16 29 39 ·24 | 27 7 9 ·9 | 48 ·72 |
| 6 | 16 31 53 ·43 | 27 12 2 ·2 | 47 ·42 |
| 7 | 16 34 7 ·91 | 27 16 46 ·7 | 46 ·12 |
| 8 | 16 36 22 ·68 | 27 21 23 ·4 | 44 ·80 |
| 9 | 16 38 37 ·74 | 27 25 52 ·2 | 43 ·47 |
| 10 | 16 40 53 ·07 | 27 30 13 ·0 | 42 ·13 |
| 11 | 16 43 8 ·69 | 27 34 25 ·8 | 40 ·80 |
| 12 | 16 45 24 ·58 | 27 38 30 ·6 | 39 ·43 |
| 13 | 16 47 40 ·75 | 27 42 27 ·2 | 38 ·08 |
| 14 | 16 49 57 ·19 | 27 46 15 ·7 | 36 ·72 |
| 15 | 16 52 13 ·89 | 27 49 56 ·0 | 35 ·32 |
| 16 | 16 54 30 ·86 | 27 53 27 ·9 | 33 ·95 |
| 17 | 16 56 48 ·09 | 27 56 51 ·6 | 32 ·57 |
| 18 | 16 59 5 ·58 | 28 0 7 ·0 | 31 ·15 |
| 19 | 17 1 23 ·32 | 28 3 13 ·9 | 29 ·73 |
| 20 | 17 3 41 ·31 | 28 6 12 ·3 | 28 ·33 |
| 21 | 17 5 59 ·54 | 28 9 2 ·3 | 26 ·90 |
| 22 | 17 8 18 ·01 | 28 11 43 ·7 | 25 ·48 |
| 23 | 17 10 36 ·72 | 28 14 16 ·6 | 24 ·03 |
| 24 | 17 12 55 ·66 | S. 28 16 40 ·8 | |

| Hour. | Right Ascension. | Declination. | Diff. for |
|---|---|---|---|
| | *MONDAY* 19. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 17 12 55 ·66 | S. 28 16 40 ·8 | 22 |
| 1 | 17 15 14 ·83 | 28 18 56 ·4 | 21 |
| 2 | 17 17 34 ·22 | 28 21 3 ·2 | 19 |
| 3 | 17 19 53 ·83 | 28 23 1 ·3 | 18 |
| 4 | 17 22 13 ·66 | 28 24 50 ·5 | 16 |
| 5 | 17 24 33 ·69 | 28 26 30 ·9 | 15 |
| 6 | 17 26 53 ·93 | 28 28 2 ·5 | 13 |
| 7 | 17 29 14 ·37 | 28 29 25 ·1 | 12 |
| 8 | 17 31 35 ·00 | 28 30 38 ·8 | 10 |
| 9 | 17 33 55 ·82 | 28 31 43 ·4 | 9 |
| 10 | 17 36 16 ·82 | 28 32 39 ·1 | 7 |
| 11 | 17 38 38 ·00 | 28 33 25 ·6 | 6 |
| 12 | 17 40 59 ·35 | 28 34 3 ·1 | 4 |
| 13 | 17 43 20 ·87 | 28 34 31 ·4 | 3 |
| 14 | 17 45 42 ·55 | 28 34 50 ·6 | 1 |
| 15 | 17 48 4 ·38 | 28 35 0 ·5 | 0 |
| 16 | 17 50 26 ·36 | 28 35 1 ·2 | 1 |
| 17 | 17 52 48 ·49 | 28 34 52 ·7 | 2 |
| 18 | 17 55 10 ·76 | 28 34 34 ·9 | 4 |
| 19 | 17 57 33 ·16 | 28 34 7 ·8 | 6 |
| 20 | 17 59 55 ·69 | 28 33 31 ·3 | 7 |
| 21 | 18 2 18 ·34 | 28 32 45 ·5 | 9 |
| 22 | 18 4 41 ·10 | 28 31 50 ·3 | 10 |
| 23 | 18 7 3 ·97 | S. 28 30 45 ·6 | 12 |
| | *TUESDAY* 20. | | |
| 0 | 18 9 26 ·95 | S. 28 29 31 ·6 | 13 |
| 1 | 18 11 50 ·02 | 28 28 8 ·1 | 15 |
| 2 | 18 14 13 ·19 | 28 26 35 ·2 | 17 |
| 3 | 18 16 36 ·44 | 28 24 52 ·7 | 18 |
| 4 | 18 18 59 ·76 | 28 23 0 ·8 | 20 |
| 5 | 18 21 23 ·16 | 28 20 59 ·4 | 21 |
| 6 | 18 23 46 ·63 | 28 18 48 ·4 | 23 |
| 7 | 18 26 10 ·16 | 28 16 27 ·9 | 25 |
| 8 | 18 28 33 ·74 | 28 13 57 ·8 | 26 |
| 9 | 18 30 57 ·37 | 28 11 18 ·2 | 28 |
| 10 | 18 33 21 ·03 | 28 8 29 ·1 | 29 |
| 11 | 18 35 44 ·74 | 28 5 30 ·3 | 31 |
| 12 | 18 38 8 ·47 | 28 2 22 ·0 | 32 |
| 13 | 18 40 32 ·22 | 27 59 4 ·1 | 34 |
| 14 | 18 42 56 ·00 | 27 55 36 ·6 | 36 |
| 15 | 18 45 19 ·78 | 27 51 59 ·5 | 37 |
| 16 | 18 47 43 ·56 | 27 48 12 ·8 | 39 |
| 17 | 18 50 7 ·34 | 27 44 16 ·6 | 40 |
| 18 | 18 52 31 ·12 | 27 40 10 ·8 | 42 |
| 19 | 18 54 54 ·88 | 27 35 55 ·4 | 44 |
| 20 | 18 57 18 ·62 | 27 31 30 ·4 | 45 |
| 21 | 18 59 42 ·34 | 27 26 55 ·9 | 47 |
| 22 | 19 2 6 ·02 | 27 22 11 ·8 | 48 |
| 23 | 19 4 29 ·67 | 27 17 18 ·2 | 50 |
| 24 | 19 6 53 ·27 | S. 27 12 15 ·0 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *WEDNESDAY* 21. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 19 6 53 ·27 | S. 27 12 15 ·0 | 52 ·12 |
| 1 | 19 9 16 ·82 | 27 7 2 ·3 | 53 ·68 |
| 2 | 19 11 40 ·32 | 27 1 40 ·2 | 55 ·28 |
| 3 | 19 14 3 ·75 | 26 56 8 ·5 | 56 ·85 |
| 4 | 19 16 27 ·12 | 26 50 27 ·4 | 58 ·43 |
| 5 | 19 18 50 ·42 | 26 44 36 ·8 | 60 ·00 |
| 6 | 19 21 13 ·65 | 26 38 36 ·8 | 61 ·57 |
| 7 | 19 23 36 ·79 | 26 32 27 ·4 | 63 ·13 |
| 8 | 19 25 59 ·84 | 26 26 8 ·6 | 64 ·70 |
| 9 | 19 28 22 ·81 | 26 19 40 ·4 | 66 ·25 |
| 10 | 19 30 45 ·68 | 26 13 2 ·9 | 67 ·80 |
| 11 | 19 33 8 ·45 | 26 6 16 ·1 | 69 ·35 |
| 12 | 19 35 31 ·11 | 25 59 20 ·0 | 70 ·88 |
| 13 | 19 37 53 ·66 | 25 52 14 ·7 | 72 ·43 |
| 14 | 19 40 16 ·10 | 25 45 0 ·1 | 73 ·97 |
| 15 | 19 42 38 ·41 | 25 37 36 ·3 | 75 ·48 |
| 16 | 19 45 0 ·60 | 25 30 3 ·4 | 77 ·00 |
| 17 | 19 47 22 ·67 | 25 22 21 ·4 | 78 ·52 |
| 18 | 19 49 44 ·60 | 25 14 30 ·3 | 80 ·03 |
| 19 | 19 52 6 ·39 | 25 6 30 ·1 | 81 ·53 |
| 20 | 19 54 28 ·04 | 24 58 20 ·9 | 83 ·02 |
| 21 | 19 56 49 ·55 | 24 50 2 ·8 | 84 ·52 |
| 22 | 19 59 10 ·91 | 24 41 35 ·7 | 86 ·00 |
| 23 | 20 1 32 ·11 | S. 24 32 59 ·7 | 87 ·47 |
| | *THURSDAY* 22. | | |
| 0 | 20 3 53 ·16 | S. 24 24 14 ·9 | 88 ·93 |
| 1 | 20 6 14 ·05 | 24 15 21 ·3 | 90 ·40 |
| 2 | 20 8 34 ·78 | 24 6 18 ·9 | 91 ·85 |
| 3 | 20 10 55 ·34 | 23 57 7 ·8 | 93 ·28 |
| 4 | 20 13 15 ·73 | 23 47 48 ·1 | 94 ·73 |
| 5 | 20 15 35 ·95 | 23 38 19 ·7 | 96 ·15 |
| 6 | 20 17 55 ·99 | 23 28 42 ·8 | 97 ·55 |
| 7 | 20 20 15 ·86 | 23 18 57 ·5 | 98 ·98 |
| 8 | 20 22 35 ·55 | 23 9 3 ·6 | 100 ·37 |
| 9 | 20 24 55 ·06 | 22 59 1 ·4 | 101 ·77 |
| 10 | 20 27 14 ·39 | 22 48 50 ·8 | 103 ·15 |
| 11 | 20 29 33 ·52 | 22 38 31 ·9 | 104 ·52 |
| 12 | 20 31 52 ·47 | 22 28 4 ·8 | 105 ·88 |
| 13 | 20 34 11 ·23 | 22 17 29 ·5 | 107 ·22 |
| 14 | 20 36 29 ·79 | 22 6 46 ·2 | 108 ·57 |
| 15 | 20 38 48 ·17 | 21 55 54 ·8 | 109 ·90 |
| 16 | 20 41 6 ·35 | 21 44 55 ·4 | 111 ·22 |
| 17 | 20 43 24 ·33 | 21 33 48 ·1 | 112 ·53 |
| 18 | 20 45 42 ·11 | 21 22 32 ·9 | 113 ·83 |
| 19 | 20 47 59 ·70 | 21 11 9 ·9 | 115 ·13 |
| 20 | 20 50 17 ·09 | 20 59 39 ·1 | 116 ·40 |
| 21 | 20 52 34 ·28 | 20 48 0 ·7 | 117 ·67 |
| 22 | 20 54 51 ·26 | 20 36 14 ·7 | 118 ·92 |
| 23 | 20 57 8 ·05 | 20 24 21 ·2 | 120 ·17 |
| 24 | 20 59 24 ·63 | S. 20 12 20 ·2 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *FRIDAY* 23. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 20 59 24 ·63 | S. 20 12 20 ·2 | 121 ·40 |
| 1 | 21 1 41 ·01 | 20 0 11 ·8 | 122 ·62 |
| 2 | 21 3 57 ·19 | 19 47 56 ·1 | 123 ·83 |
| 3 | 21 6 13 ·17 | 19 35 33 ·1 | 125 ·03 |
| 4 | 21 8 28 ·94 | 19 23 2 ·9 | 126 ·22 |
| 5 | 21 10 44 ·52 | 19 10 25 ·6 | 127 ·38 |
| 6 | 21 12 59 ·88 | 18 57 41 ·3 | 128 ·53 |
| 7 | 21 15 15 ·05 | 18 44 50 ·1 | 129 ·70 |
| 8 | 21 17 30 ·02 | 18 31 51 ·9 | 130 ·82 |
| 9 | 21 19 44 ·78 | 18 18 47 ·0 | 131 ·95 |
| 10 | 21 21 59 ·35 | 18 5 35 ·3 | 133 ·07 |
| 11 | 21 24 13 ·71 | 17 52 16 ·9 | 134 ·15 |
| 12 | 21 26 27 ·88 | 17 38 52 ·0 | 135 ·25 |
| 13 | 21 28 41 ·85 | 17 25 20 ·6 | 136 ·30 |
| 14 | 21 30 55 ·62 | 17 11 42 ·8 | 137 ·37 |
| 15 | 21 33 9 ·19 | 16 57 58 ·6 | 138 ·40 |
| 16 | 21 35 22 ·57 | 16 44 8 ·2 | 139 ·43 |
| 17 | 21 37 35 ·76 | 16 30 11 ·6 | 140 ·43 |
| 18 | 21 39 48 ·76 | 16 16 9 ·0 | 141 ·45 |
| 19 | 21 42 1 ·57 | 16 2 0 ·3 | 142 ·43 |
| 20 | 21 44 14 ·19 | 15 47 45 ·7 | 143 ·42 |
| 21 | 21 46 26 ·63 | 15 33 25 ·2 | 144 ·37 |
| 22 | 21 48 38 ·88 | 15 18 59 ·0 | 145 ·32 |
| 23 | 21 50 50 ·95 | S. 15 4 27 ·1 | 146 ·25 |
| | *SATURDAY* 24. | | |
| 0 | 21 53 2 ·84 | S. 14 49 49 ·6 | 147 ·17 |
| 1 | 21 55 14 ·55 | 14 35 6 ·6 | 148 ·07 |
| 2 | 21 57 26 ·09 | 14 20 18 ·2 | 148 ·95 |
| 3 | 21 59 37 ·46 | 14 5 24 ·5 | 149 ·83 |
| 4 | 22 1 48 ·66 | 13 50 25 ·5 | 150 ·70 |
| 5 | 22 3 59 ·69 | 13 35 21 ·3 | 151 ·53 |
| 6 | 22 6 10 ·55 | 13 20 12 ·1 | 152 ·35 |
| 7 | 22 8 21 ·25 | 13 4 58 ·0 | 153 ·18 |
| 8 | 22 10 31 ·79 | 12 49 38 ·9 | 153 ·98 |
| 9 | 22 12 42 ·18 | 12 34 15 ·0 | 154 ·77 |
| 10 | 22 14 52 ·41 | 12 18 46 ·4 | 155 ·53 |
| 11 | 22 17 2 ·49 | 12 3 13 ·2 | 156 ·28 |
| 12 | 22 19 12 ·42 | 11 47 35 ·5 | 157 ·02 |
| 13 | 22 21 22 ·21 | 11 31 53 ·4 | 157 ·75 |
| 14 | 22 23 31 ·85 | 11 16 6 ·9 | 158 ·47 |
| 15 | 22 25 41 ·37 | 11 0 16 ·1 | 159 ·13 |
| 16 | 22 27 50 ·74 | 10 44 21 ·3 | 159 ·83 |
| 17 | 22 29 59 ·98 | 10 28 22 ·3 | 160 ·48 |
| 18 | 22 32 9 ·10 | 10 12 19 ·4 | 161 ·13 |
| 19 | 22 34 18 ·09 | 9 56 12 ·6 | 161 ·75 |
| 20 | 22 36 26 ·97 | 9 40 2 ·1 | 162 ·38 |
| 21 | 22 38 35 ·72 | 9 23 47 ·8 | 162 ·97 |
| 22 | 22 40 44 ·37 | 9 7 30 ·0 | 163 ·57 |
| 23 | 22 42 52 ·90 | 8 51 8 ·6 | 164 ·12 |
| 24 | 22 45 1 ·33 | S. 8 34 43 ·9 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SUNDAY* 25. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 22 45 1·33 | S. 8 34 43·9 | 164·67 |
| 1 | 22 47 9·66 | 8 18 15·9 | 165·22 |
| 2 | 22 49 17·89 | 8 1 44·6 | 165·72 |
| 3 | 22 51 26·03 | 7 45 10·3 | 166·23 |
| 4 | 22 53 34·08 | 7 28 32·9 | 166·72 |
| 5 | 22 55 42·04 | 7 11 52·6 | 167·18 |
| 6 | 22 57 49·92 | 6 55 9·5 | 167·63 |
| 7 | 22 59 57·73 | 6 38 23·7 | 168·08 |
| 8 | 23 2 5·47 | 6 21 35·2 | 168·50 |
| 9 | 23 4 13·13 | 6 4 44·2 | 168·90 |
| 10 | 23 6 20·74 | 5 47 50·8 | 169·30 |
| 11 | 23 8 28·28 | 5 30 55·0 | 169·67 |
| 12 | 23 10 35·77 | 5 13 57·0 | 170·02 |
| 13 | 23 12 43·21 | 4 56 56·9 | 170·37 |
| 14 | 23 14 50·60 | 4 39 54·7 | 170·68 |
| 15 | 23 16 57·95 | 4 22 50·6 | 171·00 |
| 16 | 23 19 5·27 | 4 5 44·6 | 171·28 |
| 17 | 23 21 12·55 | 3 48 36·9 | 171·57 |
| 18 | 23 23 19·80 | 3 31 27·5 | 171·82 |
| 19 | 23 25 27·03 | 3 14 16·6 | 172·05 |
| 20 | 23 27 34·24 | 2 57 4·3 | 172·28 |
| 21 | 23 29 41·41 | 2 39 50·6 | 172·48 |
| 22 | 23 31 48·63 | 2 22 35·7 | 172·67 |
| 23 | 23 33 55·81 | S. 2 5 19·7 | 172·85 |
| | *MONDAY* 26. | | |
| 0 | 23 36 3·00 | S. 1 48 2·6 | 173·00 |
| 1 | 23 38 10·19 | 1 30 44·6 | 173·15 |
| 2 | 23 40 17·40 | 1 13 25·7 | 173·27 |
| 3 | 23 42 24·61 | 0 56 6·1 | 173·37 |
| 4 | 23 44 31·85 | 0 38 45·9 | 173·47 |
| 5 | 23 46 39·11 | 0 21 25·1 | 173·52 |
| 6 | 23 48 46·41 | S. 0 4 4·0 | 173·58 |
| 7 | 23 50 53·73 | N. 0 13 17·5 | 173·63 |
| 8 | 23 53 1·10 | 0 30 39·3 | 173·63 |
| 9 | 23 55 8·51 | 0 48 1·1 | 173·65 |
| 10 | 23 57 15·97 | 1 5 23·0 | 173·62 |
| 11 | 23 59 23·49 | 1 22 44·7 | 173·60 |
| 12 | 0 1 31·06 | 1 40 6·3 | 173·55 |
| 13 | 0 3 38·70 | 1 57 27·6 | 173·48 |
| 14 | 0 5 46·41 | 2 14 48·5 | 173·38 |
| 15 | 0 7 54·19 | 2 32 8·8 | 173·30 |
| 16 | 0 10 2·05 | 2 49 28·6 | 173·18 |
| 17 | 0 12 10·01 | 3 6 47·7 | 173·05 |
| 18 | 0 14 18·04 | 3 24 6·0 | 172·88 |
| 19 | 0 16 26·17 | 3 41 23·3 | 172·72 |
| 20 | 0 18 34·40 | 3 58 39·6 | 172·53 |
| 21 | 0 20 42·73 | 4 15 54·8 | 172·33 |
| 22 | 0 22 51·17 | 4 33 8·8 | 172·12 |
| 23 | 0 24 59·72 | 4 50 21·5 | 171·87 |
| 24 | 0 27 8·38 | N. 5 7 32·7 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 27. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 0 27 8·38 | N. 5 7 32·7 | 171·42 |
| 1 | 0 29 17·18 | 5 24 42·4 | 171·23 |
| 2 | 0 31 26·10 | 5 41 50·4 | 171·05 |
| 3 | 0 33 35·16 | 5 58 56·7 | 170·75 |
| 4 | 0 35 44·35 | 6 16 1·2 | 170·42 |
| 5 | 0 37 53·69 | 6 33 3·7 | 170·07 |
| 6 | 0 40 3·18 | 6 50 4·1 | 169·72 |
| 7 | 0 42 12·82 | 7 7 2·4 | 169·33 |
| 8 | 0 44 22·61 | 7 23 58·4 | 168·93 |
| 9 | 0 46 32·58 | 7 40 52·0 | 168·52 |
| 10 | 0 48 42·70 | 7 57 43·1 | 168·10 |
| 11 | 0 50 53·00 | 8 14 31·7 | 167·65 |
| 12 | 0 53 3·48 | 8 31 17·6 | 167·18 |
| 13 | 0 55 14·14 | 8 48 0·7 | 166·70 |
| 14 | 0 57 24·98 | 9 4 40·9 | 166·20 |
| 15 | 0 59 36·02 | 9 21 18·1 | 165·68 |
| 16 | 1 1 47·25 | 9 37 52·2 | 165·15 |
| 17 | 1 3 58·68 | 9 54 23·1 | 164·60 |
| 18 | 1 6 10·31 | 10 10 50·7 | 164·02 |
| 19 | 1 8 22·15 | 10 27 14·8 | 163·42 |
| 20 | 1 10 34·20 | 10 43 35·4 | 162·82 |
| 21 | 1 12 46·47 | 10 59 52·4 | 162·22 |
| 22 | 1 14 58·97 | 11 16 5·7 | 161·57 |
| 23 | 1 17 11·68 | N. 11 32 15·1 | 160·90 |
| | *WEDNESDAY* 28. | | |
| 0 | 1 19 24·63 | N. 11 48 20·5 | 160·23 |
| 1 | 1 21 37·81 | 12 4 21·9 | 159·53 |
| 2 | 1 23 51·22 | 12 20 19·1 | 158·82 |
| 3 | 1 26 4·88 | 12 36 12·0 | 158·10 |
| 4 | 1 28 18·78 | 12 52 0·6 | 157·35 |
| 5 | 1 30 32·93 | 13 7 44·7 | 156·60 |
| 6 | 1 32 47·34 | 13 23 24·3 | 155·80 |
| 7 | 1 35 2·00 | 13 38 59·1 | 155·02 |
| 8 | 1 37 16·93 | 13 54 29·2 | 154·20 |
| 9 | 1 39 32·12 | 14 9 54·4 | 153·37 |
| 10 | 1 41 47·58 | 14 25 14·6 | 152·52 |
| 11 | 1 44 3·30 | 14 40 29·7 | 151·68 |
| 12 | 1 46 19·31 | 14 55 39·6 | 150·78 |
| 13 | 1 48 35·60 | 15 10 44·3 | 149·87 |
| 14 | 1 50 52·16 | 15 25 43·5 | 148·95 |
| 15 | 1 53 9·01 | 15 40 37·2 | 148·03 |
| 16 | 1 55 26·15 | 15 55 25·4 | 147·07 |
| 17 | 1 57 43·58 | 16 10 7·8 | 146·08 |
| 18 | 2 0 1·31 | 16 24 44·3 | 145·12 |
| 19 | 2 2 19·32 | 16 39 15·0 | 144·10 |
| 20 | 2 4 37·64 | 16 53 39·6 | 143·08 |
| 21 | 2 6 56·25 | 17 7 58·1 | 142·05 |
| 22 | 2 9 15·17 | 17 22 10·4 | 140·98 |
| 23 | 2 11 34·39 | 17 36 16·3 | 139·92 |
| 24 | 2 13 53·92 | N. 17 50 15·8 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Right Ascension. | Declination. | Diff. Dec. for $10^m$. |
|---|---|---|
| *THURSDAY* 29. | | |
| h m s | ° ′ ″ | ″ |
| 2 13 53 ·92 | N.17 50 15 ·8 | 138 ·82 |
| 2 16 13 ·76 | 18 4 8 ·7 | 137 ·72 |
| 2 18 33 ·91 | 18 17 55 ·0 | 136 ·60 |
| 2 20 54 ·37 | 18 31 34 ·6 | 135 ·45 |
| 2 23 15 ·15 | 18 45 7 ·3 | 134 ·28 |
| 2 25 36 ·24 | 18 58 33 ·0 | 133 ·12 |
| 2 27 57 ·65 | 19 11 51 ·7 | 131 ·93 |
| 2 30 19 ·37 | 19 25 3 ·3 | 130 ·73 |
| 2 32 41 ·42 | 19 38 7 ·7 | 129 ·50 |
| 2 35 3 ·78 | 19 51 4 ·7 | 128 ·27 |
| 2 37 26 ·47 | 20 3 54 ·3 | 127 ·00 |
| 2 39 49 ·47 | 20 16 36 ·3 | 125 ·75 |
| 2 42 12 ·80 | 20 29 10 ·8 | 124 ·47 |
| 2 44 36 ·46 | 20 41 37 ·6 | 123 ·15 |
| 2 47 0 ·43 | 20 53 56 ·5 | 121 ·85 |
| 2 49 24 ·73 | 21 6 7 ·6 | 120 ·50 |
| 2 51 49 ·36 | 21 18 10 ·6 | 119 ·17 |
| 2 54 14 ·30 | 21 30 5 ·6 | 117 ·78 |
| 2 56 39 ·57 | 21 41 52 ·3 | 116 ·42 |
| 2 59 5 ·16 | 21 53 30 ·8 | 115 ·03 |
| 3 1 31 ·06 | 22 5 1 ·0 | 113 ·60 |
| 3 3 57 ·29 | 22 16 22 ·6 | 112 ·20 |
| 3 6 23 ·83 | 22 27 35 ·8 | 110 ·73 |
| 3 8 50 ·69 | N.22 38 40 ·2 | 109 ·30 |
| *FRIDAY* 30. | | |
| 3 11 17 ·87 | N.22 49 36 ·0 | 107 ·82 |
| 3 13 45 ·36 | 23 0 22 ·9 | 106 ·35 |
| 3 16 13 ·17 | 23 11 1 ·0 | 104 ·85 |
| 3 18 41 ·28 | 23 21 30 ·1 | 103 ·33 |
| 3 21 9 ·70 | 23 31 50 ·1 | 101 ·80 |
| 3 23 38 ·42 | 23 42 0 ·9 | 100 ·27 |
| 3 26 7 ·45 | 23 52 2 ·5 | 98 ·72 |
| 3 28 36 ·77 | 24 1 54 ·8 | 97 ·15 |
| 3 31 6 ·40 | 24 11 37 ·7 | 95 ·58 |
| 3 33 36 ·31 | 24 21 11 ·2 | 93 ·98 |
| 3 36 6 ·52 | 24 30 35 ·1 | 92 ·37 |
| 3 38 37 ·01 | 24 39 49 ·3 | 90 ·77 |
| 3 41 7 ·78 | 24 48 53 ·9 | 89 ·13 |
| 3 43 38 ·83 | 24 57 48 ·7 | 87 ·50 |
| 3 46 10 ·16 | 25 6 33 ·7 | 85 ·83 |
| 3 48 41 ·76 | 25 15 8 ·7 | 84 ·18 |
| 3 51 13 ·63 | 25 23 33 ·8 | 82 ·50 |
| 3 53 45 ·75 | 25 31 48 ·8 | 80 ·82 |
| 3 56 18 ·13 | 25 39 53 ·7 | 79 ·12 |
| 3 58 50 ·76 | 25 47 48 ·4 | 77 ·40 |
| 4 1 23 ·63 | 25 55 32 ·8 | 75 ·68 |
| 4 3 56 ·75 | 26 3 6 ·9 | 73 ·97 |
| 4 6 30 ·10 | 26 10 30 ·7 | 72 ·22 |
| 4 9 3 ·67 | 26 17 44 ·0 | 70 ·47 |
| 4 11 37 ·47 | N.26 24 46 ·8 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. |
|---|---|---|---|
| | *SATURDAY* 31. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 4 11 37 ·47 | N.26 24 46 ·8 | 68 ·70 |
| 1 | 4 14 11 ·49 | 26 31 39 ·0 | 66 ·95 |
| 2 | 4 16 45 ·71 | 26 38 20 ·7 | 65 ·17 |
| 3 | 4 19 20 ·14 | 26 44 51 ·7 | 63 ·37 |
| 4 | 4 21 54 ·76 | 26 51 11 ·9 | 61 ·58 |
| 5 | 4 24 29 ·57 | 26 57 21 ·4 | 59 ·80 |
| 6 | 4 27 4 ·57 | 27 3 20 ·2 | 57 ·97 |
| 7 | 4 29 39 ·74 | 27 9 8 ·0 | 56 ·17 |
| 8 | 4 32 15 ·08 | 27 14 45 ·0 | 54 ·33 |
| 9 | 4 34 50 ·58 | 27 20 11 ·0 | 52 ·52 |
| 10 | 4 37 26 ·23 | 27 25 26 ·1 | 50 ·68 |
| 11 | 4 40 2 ·03 | 27 30 30 ·2 | 48 ·83 |
| 12 | 4 42 37 ·96 | 27 35 23 ·2 | 47 ·00 |
| 13 | 4 45 14 ·03 | 27 40 5 ·2 | 45 ·13 |
| 14 | 4 47 50 ·22 | 27 44 36 ·0 | 43 ·28 |
| 15 | 4 50 26 ·52 | 27 48 55 ·7 | 41 ·43 |
| 16 | 4 53 2 ·92 | 27 53 4 ·3 | 39 ·55 |
| 17 | 4 55 39 ·42 | 27 57 1 ·6 | 37 ·68 |
| 18 | 4 58 16 ·01 | 28 0 47 ·7 | 35 ·82 |
| 19 | 5 0 52 ·68 | 28 4 22 ·6 | 33 ·95 |
| 20 | 5 3 29 ·42 | 28 7 46 ·3 | 32 ·07 |
| 21 | 5 6 6 ·21 | 28 10 58 ·7 | 30 ·17 |
| 22 | 5 8 43 ·06 | 28 13 59 ·7 | 28 ·30 |
| 23 | 5 11 19 ·95 | N.28 16 49 ·5 | 26 ·42 |
| | *SUNDAY, SEPT.* 1. | | |
| 0 | 5 13 56 ·88 | N.28 19 28 ·0 | |

### PHASES OF THE MOON.

| | d h m |
|---|---|
| ☾ *Last Quarter* - | 1 21 48 ·9 |
| ● New Moon - - | 8 21 18 ·6 |
| ☽ *First Quarter* - | 16 20 37 ·6 |
| ○ Full Moon - - | 24 9 37 ·7 |
| ☾ *Last Quarter* - | 31 2 47 ·8 |

| | d h |
|---|---|
| ☾ Perigee - - - - - - - | 1 0 |
| ☾ Apogee - - - - - - - | 15 14 |
| ☾ Perigee - - - - - - - | 27 12 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | Noon. | P.L. of diff. | III$^h$. | P.L. of diff. | VI$^h$. | P.L. of diff. | IX$^h$. |
|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ |
| 1 | α Aquilæ W. | 85 41 51 | 3051 | 87 11 1 | 3049 | 88 40 13 | 3048 | 90 9 2 |
| | Fomalhaut W. | 58 59 27 | 2640 | 60 37 28 | 2628 | 62 15 45 | 2617 | 63 54 1 |
| | α Pegasi W. | 37 55 51 | 2960 | 39 26 54 | 2912 | 40 58 58 | 2868 | 42 31 5 |
| | Aldebaran E. | 41 58 34 | 2459 | 40 16 23 | 2472 | 38 34 30 | 2488 | 36 53 |
| | Sun E. | 102 0 30 | 2591 | 100 21 23 | 2592 | 98 42 17 | 2591 | 97 3 1 |
| 2 | Fomalhaut W. | 72 9 42 | 2575 | 73 49 11 | 2572 | 75 28 45 | 2569 | 77 8 2 |
| | α Pegasi W. | 50 27 29 | 2698 | 52 4 12 | 2680 | 53 41 19 | 2664 | 55 18 4 |
| | Aldebaran E. | 28 33 25 | 2657 | 26 55 47 | 2705 | 25 19 14 | 2766 | 23 44 |
| | Sun E. | 88 47 54 | 2596 | 87 8 54 | 2599 | 85 29 57 | 2599 | 83 51 |
| 3 | Fomalhaut W. | 85 27 4 | 2564 | 87 6 48 | 2566 | 88 46 29 | 2569 | 90 26 |
| | α Pegasi W. | 63 30 12 | 2602 | 65 9 5 | 2596 | 66 48 6 | 2590 | 68 27 |
| | α Arietis W. | 19 55 7 | 2502 | 21 36 18 | 2475 | 23 18 6 | 2454 | 25 0 2 |
| | Sun E. | 75 37 3 | 2613 | 73 58 25 | 2615 | 72 19 50 | 2618 | 70 41 |
| 4 | α Pegasi W. | 76 43 58 | 2577 | 78 23 24 | 2577 | 80 2 50 | 2579 | 81 42 |
| | α Arietis W. | 33 35 57 | 2401 | 35 19 31 | 2398 | 37 3 9 | 2396 | 38 46 4 |
| | Sun E. | 62 29 48 | 2638 | 60 51 44 | 2641 | 59 13 45 | 2646 | 57 35 3 |
| 5 | α Pegasi W. | 89 58 22 | 2598 | 91 37 20 | 2603 | 93 16 11 | 2610 | 94 54 5 |
| | α Arietis W. | 47 25 7 | 2401 | 49 8 40 | 2404 | 50 52 9 | 2407 | 52 35 3 |
| | Aldebaran W. | 18 46 45 | 3146 | 20 13 59 | 3031 | 21 43 34 | 2940 | 23 15 |
| | Sun E. | 49 28 3 | 2675 | 47 50 50 | 2681 | 46 13 45 | 2687 | 44 36 4 |
| 6 | α Arietis W. | 61 11 8 | 2434 | 62 53 54 | 2440 | 64 36 32 | 2446 | 66 19 |
| | Aldebaran W. | 31 9 39 | 2684 | 32 46 41 | 2665 | 34 24 8 | 2650 | 36 1 5 |
| | Sun E. | 36 34 17 | 2729 | 34 58 16 | 2738 | 33 22 26 | 2746 | 31 46 4 |
| 11 | Sun W. | 25 5 47 | 3174 | 26 32 27 | 3184 | 27 58 55 | 3195 | 29 25 1 |
| | Jupiter E. | 31 29 59 | 2897 | 29 57 36 | 2913 | 28 25 33 | 2928 | 26 53 5 |
| | Mars E. | 42 12 22 | 3038 | 40 42 56 | 3050 | 39 13 45 | 3063 | 37 44 5 |
| | Saturn E. | 80 32 32 | 2839 | 78 58 55 | 2853 | 77 25 36 | 2865 | 75 52 3 |
| | Antares E. | 84 23 41 | 2807 | 82 49 22 | 2819 | 81 15 19 | 2830 | 79 41 3 |
| 12 | Sun W. | 36 33 14 | 3260 | 37 58 12 | 3270 | 39 22 59 | 6281 | 40 47 3 |
| | Mars E. | 30 24 21 | 3143 | 28 57 3 | 3156 | 27 30 1 | 3170 | 26 3 1 |
| | Saturn E. | 68 10 59 | 2935 | 66 39 25 | 2946 | 65 8 5 | 2957 | 63 36 5 |
| | Antares E. | 71 56 3 | 2897 | 70 23 40 | 2906 | 68 51 29 | 2917 | 67 19 3 |
| 13 | Sun W. | 47 47 29 | 3339 | 49 10 55 | 3347 | 50 34 12 | 3357 | 51 57 1 |
| | Saturn E. | 56 4 56 | 3022 | 54 35 11 | 3033 | 53 5 39 | 3043 | 51 36 2 |
| | Antares E. | 59 42 51 | 2974 | 58 12 5 | 2982 | 56 41 30 | 2990 | 55 11 |
| 14 | Sun W. | 58 50 38 | 3400 | 60 12 55 | 3406 | 61 35 5 | 3411 | 62 57 |
| | Saturn E. | 44 12 44 | 3101 | 42 44 36 | 3111 | 41 16 40 | 3120 | 39 48 5 |
| | Antares E. | 47 41 17 | 3032 | 46 11 44 | 3038 | 44 42 18 | 3043 | 43 12 5 |
| | α Aquilæ E. | 99 56 14 | 3822 | 98 41 35 | 3822 | 97 26 56 | 3822 | 96 12 1 |
| 15 | Sun W. | 69 46 11 | 3435 | 71 7 48 | 3438 | 72 29 22 | 3439 | 73 50 5 |
| | Venus W. | 25 33 38 | 3362 | 26 56 38 | 3364 | 28 19 36 | 3365 | 29 42 3 |
| | Jupiter W. | 17 2 33 | 3225 | 18 28 12 | 3214 | 19 54 5 | 3204 | 21 20 |
| | Saturn E. | 32 33 13 | 3183 | 31 6 44 | 3196 | 29 40 30 | 3209 | 28 14 3 |
| | Antares E. | 35 47 36 | 3065 | 34 18 44 | 3068 | 32 49 55 | 3070 | 31 |
| | α Aquilæ E. | 89 59 15 | 3831 | 88 44 45 | 3835 | 87 30 19 | 3838 | 86 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of Month | Star's Name and Position. | Midnight. | P. L. of diff. | XV$^h$. | P. L. of diff. | XVIII$^h$. | P. L. of diff. | XXI$^h$. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 1 | α Aquilæ W. | 91 38 39 | 3051 | 93 7 49 | 3054 | 94 36 55 | 3059 | 96 5 55 | 3065 |
| | Fomalhaut W. | 65 33 2 | 2599 | 67 11 58 | 2592 | 68 51 4 | 2585 | 70 30 19 | 2580 |
| | α Pegasi W. | 44 5 47 | 2797 | 45 40 18 | 2767 | 47 15 29 | 2741 | 48 51 14 | 2719 |
| | Aldebaran E. | 35 11 55 | 2527 | 33 31 20 | 2552 | 31 51 19 | 2582 | 30 11 59 | 2616 |
| | Sun E. | 95 24 5 | 2593 | 93 45 0 | 2594 | 92 5 57 | 2594 | 90 26 54 | 2596 |
| 2 | Fomalhaut W. | 78 48 5 | 2564 | 80 27 49 | 2564 | 82 7 34 | 2564 | 83 47 19 | 2564 |
| | α Pegasi W. | 56 56 34 | 2638 | 58 34 38 | 2627 | 60 12 57 | 2617 | 61 51 29 | 2609 |
| | Aldebaran E. | 22 10 25 | 2931 | 20 38 45 | 3047 | 19 9 30 | 3197 | 17 43 17 | 3393 |
| | Sun E. | 82 12 8 | 2604 | 80 33 18 | 2605 | 78 54 30 | 2607 | 77 15 45 | 2610 |
| 3 | Fomalhaut W. | 92 5 42 | 2574 | 93 45 12 | 2579 | 95 24 36 | 2583 | 97 3 54 | 2589 |
| | α Pegasi W. | 70 6 29 | 2583 | 71 45 47 | 2580 | 73 25 9 | 2579 | 75 4 33 | 2578 |
| | α Arietis W. | 26 43 3 | 2427 | 28 25 59 | 2417 | 30 9 9 | 2410 | 31 52 29 | 2405 |
| | Sun E. | 69 2 52 | 2624 | 67 24 29 | 2627 | 65 46 10 | 2630 | 64 7 56 | 2635 |
| 4 | α Pegasi W. | 83 21 36 | 2582 | 85 0 55 | 2586 | 86 40 9 | 2590 | 88 19 18 | 2593 |
| | α Arietis W. | 40 30 30 | 2395 | 42 14 12 | 2396 | 43 57 53 | 2398 | 45 41 31 | 2399 |
| | Sun E. | 55 58 6 | 2655 | 54 20 25 | 2660 | 52 42 51 | 2664 | 51 5 23 | 2670 |
| 5 | α Pegasi W. | 96 33 25 | 2624 | 98 11 48 | 2632 | 99 50 0 | 2641 | 101 28 0 | 2649 |
| | α Arietis W. | 54 18 53 | 2415 | 56 2 6 | 2419 | 57 45 13 | 2424 | 59 28 14 | 2429 |
| | Aldebaran W. | 24 47 59 | 2815 | 26 22 7 | 2771 | 27 57 13 | 2735 | 29 33 7 | 2706 |
| | Sun E. | 42 59 59 | 2701 | 41 23 20 | 2707 | 39 46 49 | 2714 | 38 10 28 | 2722 |
| 6 | α Arietis W. | 68 1 21 | 2459 | 69 43 32 | 2466 | 71 25 33 | 2473 | 73 7 24 | 2480 |
| | Aldebaran W. | 37 39 56 | 2630 | 39 18 10 | 2624 | 40 56 32 | 2619 | 42 35 1 | 2616 |
| | Sun E. | 30 11 21 | 2765 | 28 36 7 | 2775 | 27 1 6 | 2785 | 25 26 19 | 2797 |
| 11 | Sun W. | 30 51 12 | 3216 | 32 17 2 | 3228 | 33 42 38 | 3238 | 35 8 2 | 3248 |
| | Jupiter E. | 25 22 27 | 2961 | 23 51 26 | 2980 | 22 20 48 | 2999 | 20 50 34 | 3020 |
| | Mars E. | 36 16 12 | 3090 | 34 47 50 | 3103 | 33 19 44 | 3116 | 31 51 54 | 3130 |
| | Saturn E. | 74 19 43 | 2888 | 72 47 9 | 2901 | 71 14 51 | 2913 | 69 42 48 | 2924 |
| | Antares E. | 78 7 56 | 2852 | 76 34 36 | 2864 | 75 1 31 | 2875 | 73 28 40 | 2886 |
| 12 | Sun W. | 42 11 55 | 3301 | 43 36 5 | 3311 | 45 0 4 | 3320 | 46 23 52 | 3330 |
| | Mars E. | 24 36 47 | 3198 | 23 10 35 | 3212 | 21 44 40 | 3228 | 20 19 4 | 3244 |
| | Saturn E. | 62 6 7 | 2980 | 60 35 29 | 2991 | 59 5 5 | 3002 | 57 34 54 | 3012 |
| | Antares E. | 65 47 48 | 2937 | 64 16 16 | 2946 | 62 44 56 | 2956 | 61 13 48 | 2965 |
| 13 | Sun W. | 53 20 15 | 3372 | 54 43 4 | 3380 | 56 5 43 | 3387 | 57 28 14 | 3394 |
| | Saturn E. | 50 7 13 | 3063 | 48 38 18 | 3073 | 47 9 35 | 3083 | 45 41 4 | 3092 |
| | Antares E. | 53 40 50 | 3006 | 52 10 44 | 3013 | 50 40 47 | 3019 | 49 10 58 | 3026 |
| 14 | Sun W. | 64 19 7 | 3422 | 65 40 59 | 3425 | 67 2 47 | 3429 | 68 24 31 | 3432 |
| | Saturn E. | 38 21 23 | 3140 | 36 54 2 | 3150 | 35 26 53 | 3160 | 33 59 56 | 3172 |
| | Antares E. | 41 43 44 | 3052 | 40 14 35 | 3056 | 38 45 31 | 3060 | 37 16 32 | 3062 |
| | α Aquilæ E. | 94 57 37 | 3823 | 93 42 59 | 3825 | 92 28 23 | 3826 | 91 13 48 | 3828 |
| 15 | Sun W. | 75 12 26 | 3441 | 76 33 56 | 3442 | 77 55 25 | 3441 | 79 16 55 | 3441 |
| | Venus W. | 31 5 27 | 3366 | 32 28 22 | 3365 | 33 51 18 | 3365 | 35 14 15 | 3364 |
| | [illegible] | 22 46 23 | 3190 | 24 12 44 | 3185 | 25 39 11 | 3179 | 27 5 45 | 3174 |
| | | 48 51 | 3241 | 25 23 31 | 3261 | 23 58 34 | 3284 | 22 34 4 | 3311 |
| | | 74 | 3079 | 28 23 40 | 3073 | 26 54 57 | 3073 | 25 26 14 | 3072 |
| | | | | 83 47 22 | 3852 | 82 33 13 | 3857 | 81 19 9 | 3861 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P. L. of diff. | III h. | P. L. of diff. | VI h. | P. L. of diff. | IX h. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ |
| 16 | Sun | W. | 80 38 25 | 3439 | 81 59 57 | 3438 | 83 21 31 | 3435 | 84 43 |
| | Venus | W. | 36 37 13 | 3361 | 38 0 14 | 3359 | 39 23 17 | 3356 | 40 46 |
| | Jupiter | W. | 28 32 25 | 3169 | 29 59 11 | 3165 | 31 26 2 | 3160 | 32 52 |
| | Spica ♍ | W. | 21 59 3 | 3074 | 23 27 44 | 3072 | 24 56 28 | 3069 | 26 25 |
| | α Aquilæ | E. | 80 5 10 | 3868 | 78 51 18 | 3875 | 77 37 33 | 3882 | 76 23 |
| | Fomalhaut | E. | 105 9 12 | 3351 | 103 45 59 | 3345 | 102 22 40 | 3340 | 100 59 |
| 17 | Sun | W. | 91 32 9 | 3410 | 92 54 14 | 3405 | 94 16 25 | 3399 | 95 38 |
| | Venus | W. | 47 43 8 | 3328 | 49 6 47 | 3321 | 50 30 34 | 3314 | 51 54 |
| | Jupiter | W. | 40 9 18 | 3127 | 41 36 55 | 3120 | 43 4 40 | 3113 | 44 32 |
| | Spica ♍ | W. | 33 50 15 | 3046 | 35 19 31 | 3040 | 36 48 54 | 3034 | 38 18 |
| | Mars | W. | 26 36 44 | 3307 | 28 0 48 | 3298 | 29 25 2 | 3290 | 30 49 |
| | α Aquilæ | E. | 70 17 58 | 3940 | 69 5 19 | 3952 | 67 52 52 | 3966 | 66 40 |
| | Fomalhaut | E. | 94 0 35 | 3307 | 92 36 31 | 3301 | 91 12 21 | 3294 | 89 48 |
| 18 | Sun | W. | 102 32 25 | 3350 | 103 55 39 | 3340 | 105 19 4 | 3329 | 106 42 |
| | Venus | W. | 58 56 25 | 3262 | 60 21 21 | 3253 | 61 46 28 | 3242 | 63 11 |
| | Jupiter | W. | 51 54 24 | 3064 | 53 23 18 | 3054 | 54 52 24 | 3044 | 56 21 |
| | Spica ♍ | W. | 45 48 10 | 2989 | 47 18 37 | 2980 | 48 49 15 | 2970 | 50 20 |
| | Mars | W. | 37 53 54 | 3236 | 39 19 21 | 3225 | 40 45 1 | 3215 | 42 10 |
| | Fomalhaut | E. | 82 44 40 | 3256 | 81 19 37 | 3248 | 79 54 25 | 3241 | 78 29 |
| | α Pegasi | E. | 104 46 39 | 3243 | 103 21 21 | 3231 | 101 55 48 | 3219 | 100 30 |
| 19 | Sun | W. | 113 44 6 | 3259 | 115 9 6 | 3246 | 116 34 21 | 3232 | 117 59 |
| | Venus | W. | 70 22 1 | 3168 | 71 48 49 | 3153 | 73 15 54 | 3139 | 74 43 |
| | Jupiter | W. | 63 51 35 | 2976 | 65 22 18 | 2964 | 66 53 16 | 2951 | 68 24 |
| | Spica ♍ | W. | 57 57 36 | 2905 | 59 29 49 | 2893 | 61 2 17 | 2880 | 62 35 |
| | Mars | W. | 49 23 39 | 3143 | 50 50 57 | 3129 | 52 18 31 | 3116 | 53 46 |
| | Fomalhaut | E. | 71 20 21 | 3201 | 69 54 13 | 3195 | 68 27 58 | 3188 | 67 1 |
| | α Pegasi | E. | 93 17 22 | 3143 | 91 50 5 | 3131 | 90 22 33 | 3119 | 88 54 |
| 20 | Sun | W. | 125 11 43 | 3144 | 126 38 59 | 3129 | 128 6 34 | 3113 | 129 34 |
| | Venus | W. | 82 4 31 | 3049 | 83 33 43 | 3033 | 85 3 15 | 3017 | 86 33 |
| | Jupiter | W. | 76 5 0 | 2868 | 77 38 0 | 2853 | 79 11 19 | 2838 | 80 44 |
| | Mars | W. | 61 9 48 | 3030 | 62 39 24 | 3014 | 64 9 19 | 2999 | 65 39 |
| | Saturn | W. | 29 1 39 | 2934 | 30 33 15 | 2908 | 32 5 24 | 2883 | 33 38 |
| | Fomalhaut | E. | 59 48 12 | 3162 | 58 21 18 | 3161 | 56 54 22 | 3161 | 55 27 |
| | α Pegasi | E. | 81 32 1 | 3044 | 80 2 43 | 3032 | 78 33 10 | 3020 | 77 3 |
| 21 | Venus | W. | 94 7 39 | 2916 | 95 39 38 | 2899 | 97 11 58 | 2881 | 98 44 |
| | Jupiter | W. | 88 38 7 | 2746 | 90 13 46 | 2730 | 91 49 46 | 2714 | 93 26 |
| | Mars | W. | 73 15 44 | 2903 | 74 47 59 | 2886 | 76 20 36 | 2870 | 77 53 |
| | Saturn | W. | 41 28 39 | 2754 | 43 4 7 | 2735 | 44 40 1 | 2715 | 46 16 |
| | Antares | W. | 37 13 37 | 2678 | 38 50 47 | 2663 | 40 28 17 | 2646 | 42 6 |
| | Fomalhaut | E. | 48 13 26 | 3188 | 46 47 2 | 3200 | 45 20 53 | 3216 | 43 55 |
| | α Pegasi | E. | 69 30 50 | 2955 | 67 59 41 | 2946 | 66 28 21 | 2938 | 64 56 |
| 22 | Venus | W. | 106 33 51 | 2778 | 108 8 48 | 2760 | 109 44 8 | 2744 | 111 19 |
| | Jupiter | W. | 101 33 12 | 2620 | 103 11 40 | 2604 | 104 50 30 | 2588 | 106 |
| | Mars | W. | 85 43 43 | 2771 | 87 18 49 | 2754 | 88 54 17 | 2739 | |
| | Saturn | W. | 54 24 16 | 2605 | 56 3 4 | 2588 | 57 42 16 | 2579 | |
| | Antares | W. | 50 20 52 | 2552 | 52 0 53 | 2537 | 53 41 15 | 252 | |
| | α Pegasi | E. | 57 17 3 | 2905 | 55 44 50 | 2903 | 54 12 35 | 290 | |

## MEAN TIME.

### LUNAR DISTANCES.

| tar's Name and Position. | | Midnight. | P. L. of diff. | XV$^h$. | P. L. of diff. | XVIII$^h$. | P. L. of diff. | XXI$^h$. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| N | W. | 86 4 47 | 3429 | 87 26 31 | 3426 | 88 48 18 | 3421 | 90 10 11 | 3416 |
| nus | W. | 42 9 35 | 3349 | 43 32 50 | 3345 | 44 56 10 | 3339 | 46 19 36 | 3334 |
| piter | W. | 34 20 2 | 3150 | 35 47 11 | 3144 | 37 14 27 | 3139 | 38 41 49 | 3134 |
| ca ♏ | W. | 27 54 6 | 3063 | 29 23 1 | 3060 | 30 52 0 | 3056 | 32 21 4 | 3050 |
| quilæ | E. | 75 10 25 | 3899 | 73 57 4 | 3908 | 72 43 52 | 3917 | 71 30 49 | 3928 |
| malhaut | E. | 99 35 43 | 3330 | 98 12 6 | 3324 | 96 48 22 | 3319 | 95 24 32 | 3313 |
| N | W. | 97 1 10 | 3385 | 98 23 44 | 3376 | 99 46 28 | 3368 | 101 9 21 | 3359 |
| nus | W. | 53 18 32 | 3299 | 54 42 45 | 3290 | 56 7 8 | 3281 | 57 31 41 | 3272 |
| piter | W. | 46 0 36 | 3098 | 47 28 48 | 3091 | 48 57 9 | 3082 | 50 25 41 | 3073 |
| ca ♏ | W. | 39 48 4 | 3021 | 41 17 51 | 3013 | 42 47 48 | 3006 | 44 17 54 | 2998 |
| rs | W. | 32 13 57 | 3273 | 33 38 40 | 3264 | 35 3 34 | 3255 | 36 28 38 | 3245 |
| quilæ | E. | 65 28 41 | 3998 | 64 17 0 | 4016 | 63 5 36 | 4036 | 61 54 32 | 4057 |
| malhaut | E. | 88 23 38 | 3282 | 86 59 5 | 3275 | 85 34 24 | 3269 | 84 9 36 | 3262 |
| N | W. | 108 6 32 | 3308 | 109 30 34 | 3295 | 110 54 51 | 3284 | 112 19 21 | 3271 |
| nus | W. | 64 37 22 | 3218 | 66 3 10 | 3206 | 67 29 12 | 3194 | 68 55 29 | 3181 |
| piter | W. | 57 51 13 | 3023 | 59 20 57 | 3012 | 60 50 55 | 3000 | 62 21 8 | 2989 |
| ca ♏ | W. | 51 51 9 | 2950 | 53 22 25 | 2939 | 54 53 54 | 2928 | 56 25 37 | 2916 |
| rs | W. | 43 36 58 | 3192 | 45 3 17 | 3180 | 46 29 50 | 3168 | 47 56 37 | 3156 |
| malhaut | E. | 77 3 36 | 3227 | 75 37 59 | 3221 | 74 12 15 | 3214 | 72 46 22 | 3207 |
| Pegasi | E. | 99 3 59 | 3194 | 97 37 42 | 3181 | 96 11 10 | 3169 | 94 44 24 | 3156 |
| N | W. | 119 25 40 | 3204 | 120 51 44 | 3189 | 122 18 6 | 3175 | 123 44 45 | 3159 |
| nus | W. | 76 10 55 | 3111 | 77 38 51 | 3096 | 79 7 6 | 3081 | 80 35 39 | 3065 |
| piter | W. | 69 56 2 | 2924 | 71 27 50 | 2911 | 72 59 55 | 2897 | 74 32 18 | 2882 |
| ica ♏ | W. | 64 8 3 | 2853 | 65 41 22 | 2841 | 67 14 57 | 2827 | 68 48 50 | 2813 |
| rs | W. | 55 14 27 | 3089 | 56 42 50 | 3074 | 58 11 31 | 3060 | 59 40 30 | 3044 |
| malhaut | E. | 65 35 6 | 3178 | 64 8 30 | 3173 | 62 41 49 | 3169 | 61 15 3 | 3165 |
| Pegasi | E. | 87 26 44 | 3094 | 85 58 27 | 3081 | 84 29 54 | 3068 | 83 1 5 | 3056 |
| N | W. | 131 2 42 | 3081 | 132 31 15 | 3065 | 134 0 8 | 3048 | 135 29 22 | 3031 |
| nus | W. | 88 3 19 | 2984 | 89 33 52 | 2967 | 91 4 46 | 2950 | 92 36 2 | 2933 |
| piter | W. | 82 18 55 | 2808 | 83 53 13 | 2793 | 85 27 50 | 2777 | 87 2 48 | 2761 |
| rs | W. | 67 10 7 | 2967 | 68 41 1 | 2951 | 70 12 15 | 2935 | 71 43 49 | 2919 |
| turn | W. | 35 11 14 | 2837 | 36 44 54 | 2815 | 38 19 2 | 2795 | 39 53 37 | 2774 |
| malhaut | E. | 54 0 29 | 3162 | 52 33 35 | 3166 | 51 6 45 | 3171 | 49 40 1 | 3178 |
| Pegasi | E. | 75 33 19 | 2997 | 74 3 2 | 2985 | 72 32 31 | 2975 | 71 1 47 | 2965 |
| nus | W. | 100 17 46 | 2847 | 101 51 13 | 2829 | 103 25 3 | 2811 | 104 59 16 | 2795 |
| piter | W. | 95 2 50 | 2683 | 96 39 53 | 2666 | 98 17 18 | 2651 | 99 55 4 | 2635 |
| rs | W. | 79 26 53 | 2837 | 81 0 33 | 2820 | 82 34 35 | 2804 | 84 8 58 | 2787 |
| turn | W. | 47 53 7 | 2677 | 49 30 18 | 2659 | 51 7 53 | 2641 | 52 45 52 | 2623 |
| tares | W. | 43 44 23 | 2615 | 45 22 58 | 2599 | 47 1 54 | 2583 | 48 41 12 | 2567 |
| malhaut | E. | 42 29 35 | 3258 | 41 4 34 | 3287 | 39 40 7 | 3321 | 38 16 20 | 3362 |
| Pegasi | E. | 63 25 8 | 2922 | 61 53 17 | 2916 | 60 21 18 | 2911 | 58 49 13 | 2907 |
| nus | W. | 112 55 54 | 2711 | 114 32 20 | 2693 | 116 9 9 | 2677 | 117 46 20 | 2662 |
| [illegible] | | [illegible] 9 13 | 2558 | 109 49 6 | 2543 | 111 29 19 | 2528 | 113 9 53 | 2514 |
| | | [illegible] 15 | 2707 | 93 42 46 | 2691 | 95 19 38 | 2676 | 96 56 50 | 2661 |
| | | [illegible] | 2538 | 62 42 9 | 2522 | 64 22 52 | 2506 | 66 3 57 | 2490 |
| | | | | [illegible]8 44 32 | 2475 | 60 26 20 | 2460 | 62 8 29 | 2446 |
| | | | | 36 3 | 2916 | 48 4 5 | 2926 | 46 32 19 | 2939 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P. L. of diff. | III h. | P. L. of diff. | VI h. | P. L. of diff. | IX |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° |
| 22 | α Arietis | E. | 97 57 31 | 2575 | 96 18 2 | 2560 | 94 38 12 | 2544 | 92 5 |
| 23 | Mars | W. | 98 34 23 | 2646 | 100 12 16 | 2631 | 101 50 29 | 2617 | 103 2 |
| | Saturn | W. | 67 45 24 | 2475 | 69 27 12 | 2460 | 71 9 22 | 2445 | 72 3 |
| | Antares | W. | 63 50 58 | 2431 | 65 33 48 | 2417 | 67 16 58 | 2404 | 69 |
| | α Pegasi | E. | 45 0 49 | 2954 | 43 29 39 | 2974 | 41 58 54 | 2999 | 40 9 |
| | α Arietis | E. | 84 31 44 | 2455 | 82 49 27 | 2441 | 81 6 51 | 2427 | 79 9 |
| 24 | Mars | W. | 111 46 22 | 2538 | 113 26 43 | 2526 | 115 7 20 | 2515 | 116 4 |
| | Saturn | W. | 81 29 14 | 2366 | 83 13 38 | 2355 | 84 58 18 | 2344 | 86 4 |
| | Antares | W. | 77 42 41 | 2326 | 79 28 2 | 2315 | 81 13 39 | 2304 | 82 1 |
| | α Arietis | E. | 70 44 41 | 2353 | 68 59 58 | 2342 | 67 15 0 | 2331 | 65 9 |
| | Aldebaran | E. | 101 57 45 | 2405 | 100 14 18 | 2393 | 98 30 33 | 2381 | 96 4 |
| 25 | Saturn | W. | 95 31 39 | 2285 | 97 18 0 | 2278 | 99 4 32 | 2270 | 100 1 |
| | Antares | W. | 91 52 47 | 2246 | 93 40 6 | 2238 | 95 27 37 | 2231 | 97 |
| | α Arietis | E. | 56 40 17 | 2280 | 54 53 48 | 2273 | 53 7 9 | 2268 | 51 9 |
| | Aldebaran | E. | 88 2 33 | 2322 | 86 17 6 | 2314 | 84 31 27 | 2307 | 82 4 |
| 26 | Saturn | W. | 109 47 0 | 2239 | 111 34 30 | 2235 | 113 22 5 | 2233 | 115 |
| | α Aquilæ | W. | 58 58 42 | 3301 | 60 22 52 | 3258 | 61 47 53 | 3218 | 63 1 |
| | α Arietis | E. | 42 24 52 | 2248 | 40 37 36 | 2247 | 38 50 19 | 2249 | 37 |
| | Aldebaran | E. | 73 54 27 | 2278 | 72 7 55 | 2275 | 70 21 19 | 2273 | 68 3 |
| 27 | α Aquilæ | W. | 70 32 9 | 3050 | 72 1 20 | 3031 | 73 30 54 | 3015 | 75 |
| | Fomalhaut | W. | 42 39 47 | 2773 | 44 14 50 | 2735 | 45 50 44 | 2701 | 47 2 |
| | α Arietis | E. | 28 8 24 | 2288 | 26 22 7 | 2303 | 24 36 12 | 2322 | 22 5 |
| | Aldebaran | E. | 59 41 28 | 2279 | 57 54 58 | 2283 | 56 8 33 | 2287 | 54 2 |
| | Pollux | E. | 102 24 30 | 2178 | 100 35 29 | 2178 | 98 46 28 | 2178 | 96 5 |
| 28 | α Aquilæ | W. | 82 33 44 | 2963 | 84 4 43 | 2961 | 85 35 45 | 2961 | 87 |
| | Fomalhaut | W. | 55 39 1 | 2572 | 57 18 34 | 2559 | 58 58 25 | 2548 | 60 3 |
| | α Pegasi | W. | 34 47 17 | 2984 | 36 17 50 | 2921 | 37 49 42 | 2866 | 39 2 |
| | Aldebaran | E. | 45 33 27 | 2340 | 43 48 26 | 2354 | 42 3 45 | 2369 | 40 1 |
| | Pollux | E. | 87 52 44 | 2187 | 86 3 57 | 2190 | 84 15 14 | 2193 | 82 2 |
| | Sun | E. | 131 36 17 | 2482 | 129 54 39 | 2486 | 128 13 6 | 2490 | 126 3 |
| 29 | Fomalhaut | W. | 69 1 26 | 2516 | 70 42 17 | 2515 | 72 23 9 | 2515 | 74 |
| | α Pegasi | W. | 47 20 37 | 2668 | 48 58 0 | 2649 | 50 35 49 | 2633 | 52 1 |
| | Aldebaran | E. | 31 45 23 | 2520 | 30 4 38 | 2560 | 28 24 48 | 2608 | 26 4 |
| | Pollux | E. | 73 24 56 | 2220 | 71 36 58 | 2225 | 69 49 8 | 2231 | 68 |
| | Sun | E. | 118 5 45 | 2517 | 116 24 56 | 2522 | 114 44 14 | 2529 | 113 |
| 30 | Fomalhaut | W. | 82 27 44 | 2532 | 84 8 13 | 2537 | 85 48 35 | 2543 | 87 2 |
| | α Pegasi | W. | 60 28 27 | 2581 | 62 7 48 | 2578 | 63 47 13 | 2577 | 65 2 |
| | α Arietis | W. | 16 51 1 | 2533 | 18 31 28 | 2495 | 20 12 49 | 2467 | 21 5 |
| | Pollux | E. | 59 5 20 | 2270 | 57 18 37 | 2278 | 55 32 5 | 2285 | 53 4 |
| | Sun | E. | 104 43 15 | 2570 | 103 3 39 | 2577 | 101 24 13 | 2586 | 99 4 |
| 31 | Fomalhaut | W. | 95 47 21 | 2592 | 97 26 27 | 2602 | 99 5 19 | 2613 | 100 4 |
| | α Pegasi | W. | 73 43 51 | 2584 | 75 23 8 | 2588 | 77 2 20 | 2592 | 78 4 |
| | α Arietis | W. | 30 29 23 | 2413 | 32 12 39 | 2413 | 33 55 55 | 2414 | 35 3 |
| | Pollux | E. | 44 56 48 | 2333 | 43 11 37 | 2341 | 41 26 38 | 2350 | 39 4 |
| | Sun | E. | 91 31 29 | 2635 | 89 53 21 | 2643 | 88 15 25 | 2652 | 86 3 |

## MEAN TIME.

### LUNAR DISTANCES.

| | Star's Name and Position. | | Midnight. | P.L. of diff. | XV h. | P.L. of diff. | XVIII h. | P.L. of diff. | XXI h. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| | α Arietis | E. | 91 17 27 | 2513 | 89 36 32 | 2499 | 87 55 17 | 2484 | 86 13 41 | 2469 |
| | Mars | W. | 105 7 53 | 2589 | 106 47 3 | 2576 | 108 26 31 | 2562 | 110 6 18 | 2550 |
| | Saturn | W. | 74 34 42 | 2417 | 76 17 52 | 2404 | 78 1 21 | 2391 | 79 45 8 | 2378 |
| | Antares | W. | 70 44 17 | 2376 | 72 28 26 | 2364 | 74 12 53 | 2351 | 75 57 38 | 2339 |
| | α Pegasi | E. | 38 59 4 | 3066 | 37 30 13 | 3110 | 36 2 16 | 3163 | 34 35 23 | 3226 |
| | α Arietis | E. | 77 40 40 | 2401 | 75 57 7 | 2389 | 74 13 16 | 2376 | 72 29 7 | 2364 |
| 4 | Mars | W. | 118 29 21 | 2494 | 120 10 43 | 2483 | 121 52 20 | 2474 | 123 34 10 | 2465 |
| | Saturn | W. | 88 28 27 | 2322 | 90 13 54 | 2312 | 91 59 36 | 2303 | 93 45 31 | 2294 |
| | Antares | W. | 84 45 43 | 2283 | 86 32 8 | 2273 | 88 18 47 | 2264 | 90 5 40 | 2254 |
| | α Arietis | E. | 63 44 18 | 2313 | 61 58 37 | 2303 | 60 12 42 | 2295 | 58 26 35 | 2287 |
| | Aldebaran | E. | 95 2 13 | 2359 | 93 17 39 | 2349 | 91 32 51 | 2339 | 89 47 49 | 2330 |
| 5 | Saturn | W. | 102 38 7 | 2258 | 104 25 9 | 2252 | 106 12 19 | 2247 | 107 59 37 | 2243 |
| | Antares | W. | 99 3 12 | 2216 | 100 51 16 | 2210 | 102 39 28 | 2204 | 104 27 49 | 2200 |
| | α Arietis | E. | 49 33 27 | 2257 | 47 46 25 | 2254 | 45 59 18 | 2251 | 44 12 6 | 2249 |
| | Aldebaran | E. | 80 59 39 | 2294 | 79 13 31 | 2289 | 77 27 16 | 2285 | 75 40 54 | 2281 |
| 6 | Saturn | W. | 116 57 26 | 2229 | 118 45 10 | 2230 | 120 32 53 | 2229 | 122 20 37 | 2228 |
| | α Aquilæ | W. | 64 40 12 | 3150 | 66 7 21 | 3120 | 67 35 6 | 3094 | 69 3 23 | 3070 |
| | α Arietis | E. | 35 15 52 | 2255 | 33 28 46 | 2260 | 31 41 47 | 2267 | 29 54 59 | 2276 |
| | Aldebaran | E. | 66 48 0 | 2272 | 65 1 20 | 2272 | 63 14 40 | 2274 | 61 28 2 | 2277 |
| 7 | α Aquilæ | W. | 76 30 59 | 2989 | 78 1 25 | 2981 | 79 32 2 | 2973 | 81 2 49 | 2966 |
| | Fomalhaut | W. | 49 4 41 | 2646 | 50 42 34 | 2623 | 52 20 58 | 2604 | 53 59 48 | 2587 |
| | α Arietis | E. | 21 5 54 | 2379 | 19 21 49 | 2420 | 17 38 43 | 2477 | 15 56 57 | 2553 |
| | Aldebaran | E. | 52 36 6 | 2300 | 50 50 7 | 2309 | 49 4 20 | 2318 | 47 18 46 | 2328 |
| | Pollux | E. | 95 8 26 | 2179 | 93 19 27 | 2180 | 91 30 30 | 2182 | 89 41 35 | 2184 |
| 8 | α Aquilæ | W. | 88 37 48 | 2964 | 90 8 46 | 2968 | 91 39 39 | 2974 | 93 10 24 | 2982 |
| | Fomalhaut | W. | 62 18 49 | 2532 | 63 59 18 | 2526 | 65 39 55 | 2522 | 67 20 38 | 2518 |
| | α Pegasi | W. | 40 56 47 | 2779 | 42 31 42 | 2744 | 44 7 23 | 2715 | 45 43 43 | 2689 |
| | Aldebaran | E. | 38 35 32 | 2407 | 36 52 7 | 2429 | 35 9 14 | 2455 | 33 26 58 | 2484 |
| | Pollux | E. | 80 38 3 | 2200 | 78 49 36 | 2204 | 77 1 15 | 2210 | 75 13 2 | 2215 |
| | Sun | E. | 124 50 15 | 2497 | 123 8 58 | 2501 | 121 27 46 | 2507 | 119 46 42 | 2512 |
| 9 | Fomalhaut | W. | 75 44 53 | 2517 | 77 25 42 | 2520 | 79 6 27 | 2523 | 80 47 8 | 2527 |
| | α Pegasi | W. | 53 52 27 | 2608 | 55 31 11 | 2599 | 57 10 7 | 2592 | 58 49 13 | 2586 |
| | Aldebaran | E. | 25 8 35 | 2732 | 23 32 38 | 2814 | 21 58 29 | 2916 | 20 26 31 | 3046 |
| | Pollux | E. | 66 13 54 | 2243 | 64 26 31 | 2249 | 62 39 17 | 2257 | 60 52 14 | 2263 |
| | Sun | E. | 111 23 18 | 2542 | 109 43 3 | 2548 | 108 2 57 | 2556 | 106 23 1 | 2563 |
| 0 | Fomalhaut | W. | 89 8 52 | 2557 | 90 48 46 | 2564 | 92 28 30 | 2573 | 94 8 2 | 2583 |
| | α Pegasi | W. | 67 6 9 | 2575 | 68 45 38 | 2577 | 70 25 5 | 2578 | 72 4 30 | 2581 |
| | α Arietis | W. | 23 37 15 | 2434 | 25 20 1 | 2424 | 27 3 1 | 2419 | 28 46 9 | 2415 |
| | Pollux | E. | 51 59 33 | 2300 | 50 13 34 | 2309 | 48 27 47 | 2316 | 46 42 11 | 2325 |
| | Sun | E. | 98 5 55 | 2601 | 96 27 1 | 2610 | 94 48 19 | 2618 | 93 9 48 | 2627 |
| 1 | Fomalhaut | W. | 102 22 19 | 2636 | 104 0 25 | 2648 | 105 38 15 | 2661 | 107 15 47 | 2675 |
| | α Pegasi | W. | 80 20 24 | 2603 | 81 59 15 | 2609 | 83 37 58 | 2615 | 85 16 32 | 2623 |
| | α Arietis | W. | 37 22 22 | 2419 | 39 5 29 | 2423 | 40 48 31 | 2428 | 42 31 26 | 2432 |
| | Pollux | E. | 37 57 18 | 2368 | 36 12 57 | 2377 | 34 28 49 | 2386 | 32 44 54 | 2396 |
| | Sun | | 0 8 | 2669 | 83 22 47 | 2678 | 81 45 38 | 2687 | 80 8 41 | 2696 |

## CONFIGURATIONS OF THE SATELLITES OF JUPITER.

At $8^h$ $45^m$, Mean Time.

| Day of the Month. | West. | East. |
|---|---|---|
| 1 | ·4 3· ·2 ·1 | O |
| 2 | ·3 ·4 | O 1· ·2 |
| 3 | ·3 ·1 | O 4 2· |
| 4 | 2· | O 1· ·3 ·4 |
| 5 | ·1 ● | ·2 O ·3 ·4 |
| 6 | 1· | O 2· 3· ·4 |
| 7 | 2· | O 3· ·1 4· |
| 8 | 3· ·2 1· | O 4· |
| 9 | ·3 | O ·2 1· 4· |
| 10 | ·3 ·1 | O 2· 4· |
| 11 | 2· | O ·3 1· 4· |
| 12 | 4· ·2 ·1 | O ·3 |
| 13 | 4· | O ·2 3· 1· O |
| 14 | 4· | O ·1 3· O· |
| 15 | ·2 3· 1· | O |
| 16 | ·4 ·3 | O ·2 ·1 |
| 17 | ·4 ·3 ·1 | O 2· |
| 18 | ·4 2· | O ·3 1· |
| 19 | ·4 ·2 ·1 | O ·3 |
| 20 | | O 1· ·4 ·2 3· |
| 21 | ● ·1 | O 2· 3· ·4 |
| 22 | ·2 3· 1· | O ·4 |
| 23 | ● ·2 ·3 | O ·1 ·4 |
| 24 | ·3 1· | O 2· 4· |
| 25 | 2· | ·O 3 1· 4· |
| 26 | ·2 ·1 | O ·3 4· |
| 27 | | O 1· ·2 4· 3· |
| 28 | ·1 ● | O 4· 2· 3· |
| 29 | 2· 4· 3· 1· | O |
| 30 | 4· 3· | O ·1 ·2 ● |
| 31 | 4· ·3 1· | O 2· |

This Table represents, at $8^h$ $45^m$ after *Mean Noon* of each day of the month, the relative positions of the images of Jupiter and his Satellites, as they would appear (disregarding their latitudes) in an inverting telescope. Jupiter is indicated by the white circles (O) in the centre of the page; the Satellites by points. The numerals 1, 2, 3, and 4, annexed to the points, serve to distinguish the Satellites from each other; and their positions are such as to indicate the directions of the Satellites' motions, which are in all cases to be considered as *towards the numerals*. When a Satellite is at its greatest elongation, the point is placed above or below the centre of the numeral. A white circle (O) at the left or right hand of the page, denotes that the Satellite placed by the side of it is *on* the disc of Jupiter, and a black circle (●) that it is either *behind* the disc, or in the shadow, of Jupiter.

## ECLIPSES OF THE SATELLITES OF JUPITER.

| ELLITE. | Day of the Month. | Mean Time. | Sidereal Time. | PHASE as seen in an inverting Telescope. |
|---|---|---|---|---|
| | | h m s | h m s | |
| I. | 1 | 22 6 58·1 | 6 48 14·7 | Em. |
| | 3 | 16 35 34·9 | 1 23 50·2 | Em. |
| | 5 | 11 4 14·5 | 19 59 28·4 | Em. |
| | 7 | 5 32 51·2 | 14 35 3·9 | Em. |
| | 9 | 0 1 30·2 | 9 10 41·5 | Em. |
| | 10 | 18 30 6·8 | 3 46 16·8 | Em. |
| | 12 | 12 58 45·4 | 22 21 54·1 | Em. |
| | 14 | 7 27 22·1 | 16 57 29·4 | Em. |
| | 16 | 1 56 0·9 | 11 33 6·9 | Em. |
| | 17 | 20 24 36·9 | 6 8 41·6 | Em. |
| | 19 | 14 53 15·3 | 0 44 18·7 | Em. |
| | 21 | 9 21 51·1 | 19 19 53·1 | Em. |
| | 23 | 3 50 29·4 | 13 55 30·1 | Em. |
| | 24 | 22 19 5·2 | 8 31 4·6 | Em. |
| | 26 | 16 47 43·3 | 3 6 41·3 | Em. |
| | 28 | 11 16 18·0 | 21 42 14·6 | Em. |
| | 30 | 5 44 55·7 | 16 17 51·0 | Em. |
| I. | 2 | 1 48 24·4 | 10 30 17·4 | Em. |
| | 5 | 15 6 24·2 | 0 2 17·9 | Em. |
| | 9 | 4 25 22·3 | 13 35 16·9 | Em. |
| | 12 | 17 43 16·9 | 3 7 12·3 | Em. |
| | 16 | 7 2 9·1 | 16 40 5·4 | Em. |
| | 19 | 20 20 2·9 | 6 12 0·0 | Em. |
| | 23 | 9 38 48·5 | 19 44 46·4 | Em. |
| | 26 | 22 56 38·6 | 9 16 37·2 | Em. |
| | 30 | 12 15 17·3 | 22 49 16·7 | Em. |
| II. | 4 | 1 15 31·1 | 10 5 11·8 | Im. |
| | 4 | 3 40 3·8 | 12 30 8·2 | Em. |
| | 11 | 5 14 9·0 | 14 32 4·8 | Im. |
| | 11 | 7 37 57·9 | 16 56 17·3 | Em. |
| | 18 | 9 13 1·5 | 18 59 12·4 | Im. |
| | 18 | 11 36 12·2 | 21 22 46·6 | Em. |
| | 25 | 13 11 54·0 | 23 26 20·0 | Im. |
| | 25 | 15 34 24·4 | 1 49 13·9 | Em. |



## APPROXIMATE SIDEREAL TIMES

OF THE

## OCCULTATIONS OF JUPITER'S SATELLITES BY JUPITER

AND OF THE

## TRANSITS OF THE SATELLITES AND THEIR SHADOWS OVER THE DISC OF THE PLANET.

| Satellite. | Occultations. | | Transits of Satellites. | | Transits of Sha | |
|---|---|---|---|---|---|---|
| | Immersion. | Emersion. | Ingress. | Egress. | Ingress. | Eg |
| | d h m | d h m | d h m | d h m | d h m | d |
| I. | 1 3 28 | | 0 6 13 | 0 8 28 | 0 7 23 | 1 |
| | 3 22 5 | | 2 0 49 | 2 3 5 | 2 1 58 | 2 |
| | 5 16 41 | | 4 19 26 | 4 21 41 | 4 20 34 | 4 2 |
| | 7 11 18 | | 6 14 3 | 6 16 18 | 6 15 10 | 6 1 |
| | 8 5 54 | | 7 8 40 | 8 10 55 | 8 9 45 | 8 1 |
| | 10 0 31 | | 9 3 16 | 9 5 32 | 9 4 21 | 9 |
| | 12 19 8 | In | 11 21 53 | 11 0 8 | 11 22 57 | 11 |
| | 14 13 44 | | 13 16 30 | 13 18 45 | 13 17 33 | 13 1 |
| | 15 8 21 | the | 15 11 7 | 15 13 22 | 15 12 8 | 15 1 |
| | 17 2 58 | | 16 5 44 | 16 7 59 | 16 6 44 | 16 |
| | 19 21 35 | Shadow. | 18 0 21 | 18 2 36 | 18 1 20 | 18 |
| | 21 16 11 | | 20 18 58 | 20 21 13 | 20 19 56 | 20 2 |
| | 23 10 48 | | 22 13 35 | 22 15 50 | 22 14 31 | 22 1 |
| | 24 5 25 | | 23 8 12 | 24 10 27 | 23 9 7 | 24 1 |
| | 26 0 2 | | 25 2 49 | 25 5 4 | 25 3 43 | 25 |
| | 28 18 39 | | 27 21 26 | 27 23 41 | 27 22 19 | 27 |
| | 30 13 16 | | 29 16 3 | 29 18 18 | 29 16 54 | 29 1 |
| | 31 7 53 | | 31 10 40 | 31 12 55 | 31 11 30 | 31 1 |
| II. | 1 5 44 | | 3 0 16 | 3 2 48 | 3 2 37 | 3 |
| | 5 19 20 | | 7 13 52 | 7 16 24 | 7 16 9 | 7 1 |
| | 8 8 57 | In | 10 3 27 | 10 5 59 | 10 5 40 | 10 |
| | 12 22 34 | | 14 17 3 | 14 19 35 | 14 19 12 | 14 2 |
| | 16 12 11 | the | 17 6 39 | 17 9 11 | 17 8 43 | 18 1 |
| | 19 1 48 | | 21 20 16 | 21 22 48 | 21 22 14 | 21 |
| | 23 15 27 | Shadow. | 24 9 52 | 25 12 24 | 25 11 45 | 25 1 |
| | 26 5 4 | | 28 23 30 | 28 2 1 | 28 1 17 | 28 |
| | 30 18 42 | | | | | |
| III. | 3 5 17 | 3 8 13 | 7 19 41 | 7 22 37 | 7 0 15 | 7 |
| | 11 10 0 | 11 12 56 | 14 0 26 | 14 3 22 | 14 4 43 | 14 |
| | 18 14 45 | 18 17 41 | 21 5 13 | 21 8 8 | 21 9 11 | 22 |
| | 25 19 33 | 25 22 28 | 28 10 3 | 29 12 57 | 29 13 38 | 29 |

| Day of the Month. | For correcting the Places of the Fixed Stars. At Mean Midnight, Logarithm of A | B | C | D | Mean Time of Transit of the First Point of Aries. | Mean Equinoctial Time, adding 0d·293960. Days. | From Mean Noon of January 1. Day of the Year. | Fraction of the Year. |
|---|---|---|---|---|---|---|---|---|
| | | | | | h m s | | | |
| 1 | +1·0698 | −1·1995 | +9·8311 | −0·9465 | 15 19 50·32 | 131 | 212 | ·580 |
| 2 | 1·0787 | 1·1935 | 9·8331 | 0·9473 | 15 15 54·41 | 132 | 213 | ·583 |
| 3 | 1·0872 | 1·1874 | 9·8351 | 0·9481 | 15 11 58·50 | 133 | 214 | ·586 |
| 4 | +1·0955 | −1·1810 | +9·8371 | −0·9489 | 15 8 2·59 | 134 | 215 | ·589 |
| 5 | 1·1034 | 1·1743 | 9·8391 | 0·9497 | 15 4 6·67 | 135 | 216 | ·591 |
| 6 | 1·1112 | 1·1675 | 9·8411 | 0·9505 | 15 0 10·75 | 136 | 217 | ·594 |
| 7 | +1·1186 | −1·1604 | +9·8430 | −0·9513 | 14 56 14·84 | 137 | 218 | ·597 |
| 8 | 1·1258 | 1·1531 | 9·8449 | 0·9521 | 14 52 18·93 | 138 | 219 | ·600 |
| 9 | 1·1328 | 1·1455 | 9·8467 | 0·9529 | 14 48 23·01 | 139 | 220 | ·602 |
| 10 | +1·1396 | −1·1377 | +9·8486 | −0·9537 | 14 44 27·10 | 140 | 221 | ·605 |
| 11 | 1·1461 | 1·1296 | 9·8504 | 0·9545 | 14 40 31·20 | 141 | 222 | ·608 |
| 12 | 1·1525 | 1·1212 | 9·8522 | 0·9553 | 14 36 35·29 | 142 | 223 | ·611 |
| 13 | +1·1586 | −1·1125 | +9·8539 | −0·9560 | 14 32 39·39 | 143 | 224 | ·613 |
| 14 | 1·1645 | 1·1035 | 9·8557 | 0·9568 | 14 28 43·48 | 144 | 225 | ·616 |
| 15 | 1·1702 | 1·0942 | 9·8574 | 0·9576 | 14 24 47·58 | 145 | 226 | ·619 |
| 16 | +1·1757 | −1·0846 | +9·8591 | −0·9583 | 14 20 51·67 | 146 | 227 | ·621 |
| 17 | 1·1810 | 1·0746 | 9·8607 | 0·9591 | 14 16 55·76 | 147 | 228 | ·624 |
| 18 | 1·1862 | 1·0642 | 9·8624 | 0·9598 | 14 12 59·85 | 148 | 229 | ·627 |
| 19 | +1·1912 | −1·0535 | +9·8640 | −0·9605 | 14 9 3·93 | 149 | 230 | ·630 |
| 20 | 1·1959 | 1·0424 | 9·8656 | 0·9612 | 14 5 8·02 | 150 | 231 | ·632 |
| 21 | 1·2005 | 1·0308 | 9·8672 | 0·9619 | 14 1 12·10 | 151 | 232 | ·635 |
| 22 | +1·2050 | −1·0188 | +9·8688 | −0·9626 | 13 57 16·19 | 152 | 233 | ·638 |
| 23 | 1·2093 | 1·0064 | 9·8703 | 0·9633 | 13 53 20·28 | 153 | 234 | ·641 |
| 24 | 1·2134 | 0·9934 | 9·8718 | 0·9639 | 13 49 24·37 | 154 | 235 | ·643 |
| 25 | +1·2174 | −0·9799 | +9·8733 | −0·9645 | 13 45 28·46 | 155 | 236 | ·646 |
| 26 | 1·2212 | 0·9658 | 9·8748 | 0·9652 | 13 41 32·56 | 156 | 237 | ·649 |
| 27 | 1·2248 | 0·9511 | 9·8763 | 0·9658 | 13 37 36·66 | 157 | 238 | ·652 |
| 28 | +1·2283 | −0·9358 | +9·8777 | −0·9663 | 13 33 40·76 | 158 | 239 | ·654 |
| 29 | 1·2317 | 0·9198 | 9·8792 | 0·9669 | 13 29 44·85 | 159 | 240 | ·657 |
| 30 | 1·2349 | 0·9030 | 9·8806 | 0·9674 | 13 25 48·94 | 160 | 241 | ·660 |
| 31 | 1·2380 | 0·8854 | 9·8820 | 0·9680 | 13 21 53·03 | 161 | 242 | ·663 |
| 32 | +1·2409 | −0·8669 | +9·8834 | −0·9685 | 13 17 57·11 | 162 | 243 | ·665 |

## AT APPARENT NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | Diff. for 1 hour. | Apparent Declination. | Diff. for 1 hour. | Sidereal Time of the Semidiam. passing the Meridian.* | Equation of Time, *to be subtracted from Apparent Time.* | D f 1 |
|---|---|---|---|---|---|---|---|---|
| | | h m s | s | ° ′ ″ | ″ | m s | m s | s |
| *Sun.* | 1 | 10 39 51 ·55 | 9 ·075 | N.8 27 29 ·5 | 54 ·51 | 1 4 ·38 | 0 0 ·25 | 0 |
| Mon. | 2 | 10 43 29 ·36 | 9 ·064 | 8 5 41 ·2 | 54 ·85 | 1 4 ·34 | 0 18 ·95 | 0 |
| Tues. | 3 | 10 47 6 ·90 | 9 ·053 | 7 43 44 ·8 | 55 ·16 | 1 4 ·30 | 0 37 ·92 | 0 |
| Wed. | 4 | 10 50 44 ·18 | 9 ·043 | 7 21 40 ·9 | 55 ·47 | 1 4 ·26 | 0 57 ·14 | 0 |
| Thur. | 5 | 10 54 21 ·22 | 9 ·034 | 6 59 29 ·6 | 55 ·76 | 1 4 ·22 | 1 16 ·60 | 0 |
| Frid. | 6 | 10 57 58 ·03 | 9 ·025 | 6 37 11 ·4 | 56 ·03 | 1 4 ·19 | 1 36 ·29 | 0 |
| Sat. | 7 | 11 1 34 ·63 | 9 ·017 | 6 14 46 ·7 | 56 ·30 | 1 4 ·16 | 1 56 ·19 | 0 |
| *Sun.* | 8 | 11 5 11 ·03 | 9 ·010 | 5 52 15 ·6 | 56 ·54 | 1 4 ·13 | 2 16 ·28 | 0 |
| Mon. | 9 | 11 8 47 ·26 | 9 ·002 | 5 29 38 ·7 | 56 ·77 | 1 4 ·10 | 2 36 ·55 | 0 |
| Tues. | 10 | 11 12 23 ·31 | 8 ·996 | 5 6 56 ·2 | 56 ·99 | 1 4 ·08 | 2 56 ·99 | 0 |
| Wed. | 11 | 11 15 59 ·22 | 8 ·990 | 4 44 8 ·5 | 57 ·18 | 1 4 ·06 | 3 17 ·58 | 0 |
| Thur. | 12 | 11 19 34 ·99 | 8 ·986 | 4 21 16 ·1 | 57 ·37 | 1 4 ·04 | 3 38 ·30 | 0 |
| Frid. | 13 | 11 23 10 ·65 | 8 ·982 | 3 58 19 ·2 | 57 ·55 | 1 4 ·03 | 3 59 ·13 | 0 |
| Sat. | 14 | 11 26 46 ·22 | 8 ·979 | 3 35 18 ·1 | 57 ·70 | 1 4 ·02 | 4 20 ·06 | 0 |
| *Sun.* | 15 | 11 30 21 ·71 | 8 ·976 | 3 12 13 ·2 | 57 ·85 | 1 4 ·01 | 4 41 ·08 | 0 |
| Mon. | 16 | 11 33 57 ·13 | 8 ·974 | 2 49 4 ·9 | 57 ·98 | 1 4 ·01 | 5 2 ·16 | 0 |
| Tues. | 17 | 11 37 32 ·51 | 8 ·973 | 2 25 53 ·4 | 58 ·09 | 1 4 ·01 | 5 23 ·27 | 0 |
| Wed. | 18 | 11 41 7 ·87 | 8 ·973 | 2 2 39 ·2 | 58 ·19 | 1 4 ·01 | 5 44 ·42 | 0 |
| Thur. | 19 | 11 44 43 ·23 | 8 ·974 | 1 39 22 ·6 | 58 ·28 | 1 4 ·02 | 6 5 ·56 | 0 |
| Frid. | 20 | 11 48 18 ·61 | 8 ·976 | 1 16 3 ·9 | 58 ·36 | 1 4 ·03 | 6 26 ·67 | 0 |
| Sat. | 21 | 11 51 54 ·04 | 8 ·979 | 0 52 43 ·3 | 58 ·42 | 1 4 ·04 | 6 47 ·74 | 0 |
| *Sun.* | 22 | 11 55 29 ·53 | 8 ·982 | 0 29 21 ·2 | 58 ·47 | 1 4 ·05 | 7 8 ·74 | 0 |
| Mon. | 23 | 11 59 5 ·11 | 8 ·988 | N.0 5 57 ·9 | 58 ·51 | 1 4 ·07 | 7 29 ·65 | 0 |
| Tues. | 24 | 12 2 40 ·82 | 8 ·993 | S.0 17 26 ·3 | 58 ·53 | 1 4 ·09 | 7 50 ·43 | 0 |
| Wed. | 25 | 12 6 16 ·66 | 9 ·001 | 0 40 51 ·0 | 58 ·55 | 1 4 ·11 | 8 11 ·08 | 0 |
| Thur. | 26 | 12 9 52 ·68 | 9 ·009 | 1 4 16 ·1 | 58 ·55 | 1 4 ·13 | 8 31 ·56 | 0 |
| Frid. | 27 | 12 13 28 ·89 | 9 ·017 | 1 27 41 ·2 | 58 ·53 | 1 4 ·16 | 8 51 ·85 | 0 |
| Sat. | 28 | 12 17 5 ·31 | 9 ·027 | 1 51 5 ·8 | 58 ·50 | 1 4 ·19 | 9 11 ·93 | 0 |
| *Sun.* | 29 | 12 20 41 ·97 | 9 ·038 | 2 14 29 ·8 | 58 ·46 | 1 4 ·22 | 9 31 ·78 | 0 |
| Mon. | 30 | 12 24 18 ·89 | 9 ·050 | 2 37 52 ·8 | 58 ·40 | 1 4 ·26 | 9 51 ·37 | 0 |
| Tues. | 31 | 12 27 56 ·09 | | S.3 1 14 ·3 | | 1 4 ·30 | 10 10 ·67 | |

* *Mean* Time of the Semidiameter passing may be found by subtracting 0s·18 from the *Sidereal*

## AT MEAN NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | THE SUN'S Apparent Declination. | THE SUN'S Semidiam.* | Equation of Time, *to be added to Mean Time.* | Sidereal Time. |
|---|---|---|---|---|---|---|
| | | h m s | ° ′ ″ | ′ ″ | m s | h m s |
| *Sun.* | 1 | 10 39 51·56 | N. 8 27 29·5 | 15 52·7 | 0 0·24 | 10 39 51·80 |
| Mon. | 2 | 10 43 29·41 | 8 5 40·9 | 15 52·9 | 0 18·95 | 10 43 48·36 |
| Tues. | 3 | 10 47 7·00 | 7 43 44·2 | 15 53·1 | 0 37·92 | 10 47 44·92 |
| Wed. | 4 | 10 50 44·32 | 7 21 40·0 | 15 53·4 | 0 57·16 | 10 51 41·48 |
| Thur. | 5 | 10 54 21·42 | 6 59 28·4 | 15 53·6 | 1 16·62 | 10 55 38·04 |
| Frid. | 6 | 10 57 58·28 | 6 37 9·9 | 15 53·8 | 1 36·31 | 10 59 34·59 |
| Sat. | 7 | 11 1 34·92 | 6 14 44·9 | 15 54·1 | 1 56·22 | 11 3 31·14 |
| *Sun.* | 8 | 11 5 11·37 | 5 52 13·5 | 15 54·3 | 2 16·32 | 11 7 27·69 |
| Mon. | 9 | 11 8 47·65 | 5 29 36·2 | 15 54·6 | 2 36·59 | 11 11 24·24 |
| Tues. | 10 | 11 12 23·75 | 5 6 53·4 | 15 54·8 | 2 57·04 | 11 15 20·79 |
| Wed. | 11 | 11 15 59·71 | 4 44 5·4 | 15 55·1 | 3 17·63 | 11 19 17·34 |
| Thur. | 12 | 11 19 35·54 | 4 21 12·6 | 15 55·3 | 3 38·35 | 11 23 13·89 |
| Frid. | 13 | 11 23 11·25 | 3 58 15·3 | 15 55·6 | 3 59·19 | 11 27 10·44 |
| Sat. | 14 | 11 26 46·87 | 3 35 13·9 | 15 55·9 | 4 20·13 | 11 31 7·00 |
| *Sun.* | 15 | 11 30 22·41 | 3 12 8·7 | 15 56·1 | 4 41·15 | 11 35 3·56 |
| Mon. | 16 | 11 33 57·88 | 2 49 0·0 | 15 56·4 | 5 2·24 | 11 39 0·12 |
| Tues. | 17 | 11 37 33·32 | 2 25 48·2 | 15 56·7 | 5 23·35 | 11 42 56·67 |
| Wed. | 18 | 11 41 8·73 | 2 2 33·7 | 15 56·9 | 5 44·50 | 11 46 53·23 |
| Thur. | 19 | 11 44 44·14 | 1 39 16·7 | 15 57·2 | 6 5·65 | 11 50 49·79 |
| Frid. | 20 | 11 48 19·58 | 1 15 57·6 | 15 57·5 | 6 26·76 | 11 54 46·34 |
| Sat. | 21 | 11 51 55·06 | 0 52 36·7 | 15 57·8 | 6 47·84 | 11 58 42·90 |
| *Sun.* | 22 | 11 55 30·60 | 0 29 14·3 | 15 58·0 | 7 8·84 | 12 2 39·44 |
| Mon. | 23 | 11 59 6·24 | N. 0 5 50·6 | 15 58·3 | 7 29·75 | 12 6 35·99 |
| Tues. | 24 | 12 2 42·00 | S. 0 17 33·9 | 15 58·6 | 7 50·54 | 12 10 32·54 |
| Wed. | 25 | 12 6 17·89 | 0 40 59·0 | 15 58·8 | 8 11·20 | 12 14 29·09 |
| Thur. | 26 | 12 9 53·96 | 1 4 24·5 | 15 59·1 | 8 31·68 | 12 18 25·64 |
| Frid. | 27 | 12 13 30·22 | 1 27 49·8 | 15 59·4 | 8 51·98 | 12 22 22·20 |
| Sat. | 28 | 12 17 6·69 | 1 51 14·8 | 15 59·7 | 9 12·06 | 12 26 18·75 |
| *Sun.* | 29 | 12 20 43·40 | 2 14 39·1 | 15 59·9 | 9 31·91 | 12 30 15·31 |
| Mon. | 30 | 12 24 20·37 | 2 38 2·4 | 16 0·2 | 9 51·50 | 12 34 11·87 |
| Tues. | 31 | 12 27 57·62 | S. 3 1 24·2 | 16 0·5 | 10 10·81 | 12 38 8·43 |

* The Semidiameter for *Apparent* Noon may be assumed the same as that for *Mean* Noon.

## MEAN TIME.

| Day of the Month. | THE SUN'S *Apparent* Longitude. *Noon.* | THE SUN'S *Apparent* Latitude. *Noon.* | Logarithm of the Radius Vector of the Earth. *Noon.* | THE MOON'S Semidiameter. *Noon.* | THE MOON'S Semidiameter. *Midnight.* | THE MOON'S Horizontal Parallax. *Noon.* | THE MOON'S Horizontal Parallax. *Midnight.* |
|---|---|---|---|---|---|---|---|
| | ° ′ ″ | ″ | | ′ ″ | ′ ″ | ′ ″ | ′ ″ |
| 1 | 158 19 13 ·4 | N.0 ·82 | 0 ·0037364 | 15 57 ·7 | 15 53 ·6 | 58 34 ·4 | 58 19 |
| 2 | 159 17 21 ·9 | 0 ·82 | 0 ·0036330 | 15 49 ·5 | 15 45 ·3 | 58 4 ·3 | 57 48 |
| 3 | 160 15 32 ·5 | 0 ·78 | 0 ·0035284 | 15 41 ·1 | 15 36 ·9 | 57 33 ·6 | 57 18 |
| 4 | 161 13 44 ·9 | 0 ·71 | 0 ·0034226 | 15 32 ·7 | 15 28 ·6 | 57 2 ·9 | 56 47 |
| 5 | 162 11 59 ·5 | 0 ·62 | 0 ·0033152 | 15 24 ·5 | 15 20 ·4 | 56 32 ·5 | 56 17 |
| 6 | 163 10 15 ·8 | 0 ·52 | 0 ·0032063 | 15 16 ·3 | 15 12 ·4 | 56 2 ·7 | 55 48 |
| 7 | 164 8 33 ·9 | 0 ·40 | 0 ·0030957 | 15 8 ·6 | 15 4 ·9 | 55 34 ·2 | 55 20 |
| 8 | 165 6 54 ·0 | 0 ·27 | 0 ·0029837 | 15 1 ·3 | 14 57 ·9 | 55 7 ·5 | 54 55 |
| 9 | 166 5 15 ·9 | 0 ·14 | 0 ·0028700 | 14 54 ·9 | 14 52 ·1 | 54 44 ·0 | 54 33 |
| 10 | 167 3 39 ·5 | N.0 ·02 | 0 ·0027550 | 14 49 ·6 | 14 47 ·6 | 54 24 ·7 | 54 17 |
| 11 | 168 2 4 ·9 | S.0 ·09 | 0 ·0026386 | 14 45 ·9 | 14 44 ·8 | 54 11 ·1 | 54 6 |
| 12 | 169 0 31 ·9 | 0 ·17 | 0 ·0025209 | 14 44 ·1 | 14 44 ·0 | 54 4 ·4 | 54 4 |
| 13 | 169 59 0 ·7 | 0 ·23 | 0 ·0024020 | 14 44 ·5 | 14 45 ·7 | 54 6 ·0 | 54 10 |
| 14 | 170 57 31 ·2 | 0 ·26 | 0 ·0022821 | 14 47 ·4 | 14 49 ·9 | 54 16 ·7 | 54 25 |
| 15 | 171 56 3 ·3 | 0 ·27 | 0 ·0021612 | 14 53 ·1 | 14 56 ·9 | 54 37 ·4 | 54 51 |
| 16 | 172 54 37 ·0 | 0 ·24 | 0 ·0020396 | 15 1 ·4 | 15 6 ·6 | 55 7 ·8 | 55 27 |
| 17 | 173 53 12 ·4 | 0 ·18 | 0 ·0019174 | 15 12 ·4 | 15 18 ·7 | 55 48 ·2 | 56 11 |
| 18 | 174 51 49 ·4 | S.0 ·10 | 0 ·0017947 | 15 25 ·5 | 15 32 ·6 | 56 36 ·2 | 57 2 |
| 19 | 175 50 28 ·1 | N.0 ·01 | 0 ·0016718 | 15 40 ·0 | 15 47 ·5 | 57 29 ·6 | 57 57 |
| 20 | 176 49 8 ·5 | 0 ·13 | 0 ·0015488 | 15 55 ·0 | 16 2 ·2 | 58 24 ·5 | 58 51 |
| 21 | 177 47 50 ·7 | 0 ·27 | 0 ·0014257 | 16 9 ·1 | 16 15 ·4 | 59 16 ·4 | 59 39 |
| 22 | 178 46 34 ·7 | 0 ·41 | 0 ·0013028 | 16 21 ·0 | 16 25 ·8 | 60 0 ·1 | 60 17 |
| 23 | 179 45 20 ·6 | 0 ·54 | 0 ·0011801 | 16 29 ·6 | 16 32 ·3 | 60 31 ·4 | 60 41 |
| 24 | 180 44 8 ·6 | 0 ·66 | 0 ·0010575 | 16 33 ·8 | 16 34 ·2 | 60 47 ·1 | 60 48 |
| 25 | 181 42 58 ·6 | 0 ·77 | 0 ·0009351 | 16 33 ·5 | 16 31 ·8 | 60 46 ·0 | 60 39 |
| 26 | 182 41 50 ·9 | 0 ·85 | 0 ·0008128 | 16 29 ·0 | 16 25 ·3 | 60 29 ·3 | 60 15 |
| 27 | 183 40 45 ·4 | 0 ·90 | 0 ·0006906 | 16 20 ·9 | 16 15 ·9 | 59 59 ·6 | 59 41 |
| 28 | 184 39 42 ·2 | 0 ·93 | 0 ·0005685 | 16 10 ·3 | 16 4 ·5 | 59 20 ·8 | 58 59 |
| 29 | 185 38 41 ·3 | 0 ·93 | 0 ·0004465 | 15 58 ·5 | 15 52 ·5 | 58 37 ·6 | 58 15 |
| 30 | 186 37 42 ·8 | 0 ·90 | 0 ·0003245 | 15 46 ·5 | 15 40 ·6 | 57 53 ·3 | 57 31 |
| 31 | 187 36 46 ·6 | N.0 ·84 | 0 ·0002022 | 15 34 ·9 | 15 29 ·5 | 57 10 ·9 | 56 50 |

## MEAN TIME.

| Day of the Week. | Day of the Month. | THE MOON'S Longitude. Noon. | Longitude. Midnight. | Latitude. Noon. | Latitude. Midnight. | Age. Noon. | Meridian Passage. |
|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | ° ′ ″ | ° ′ ″ | ° ′ ″ | d | h m |
| *Sun.* | 1 | 79 50 15 ·3 | 86 45 56 ·0 | N.5 16 2 ·4 | N.5 11 8 ·8 | 23 ·1 | 19 21 ·4 |
| Mon. | 2 | 93 38 15 ·8 | 100 27 8 ·7 | 5 1 49 ·7 | 4 48 18 ·7 | 24 ·1 | 20 21 ·0 |
| Tues. | 3 | 107 12 32 ·7 | 113 54 26 ·2 | 4 30 53 ·6 | 4 9 54 ·2 | 25 ·1 | 21 17 ·0 |
| Wed. | 4 | 120 32 48 ·7 | 127 7 40 ·4 | 3 45 43 ·1 | 3 18 44 ·0 | 26 ·1 | 22 8 ·6 |
| Thur. | 5 | 133 39 2 ·3 | 140 6 56 ·4 | 2 49 22 ·9 | 2 18 6 ·0 | 27 ·1 | 22 56 ·0 |
| Frid. | 6 | 146 31 25 ·1 | 152 52 32 ·1 | 1 45 19 ·8 | 1 11 32 ·0 | 28 ·1 | 23 39 ·9 |
| Sat. | 7 | 159 10 21 ·4 | 165 24 59 ·8 | N.0 37 8 ·6 | N.0 2 35 ·4 | 29 ·1 | ♂ |
| *Sun.* | 8 | 171 36 33 ·4 | 177 45 12 ·4 | S.0 31 42 ·7 | S.1 5 22 ·2 | 0 ·6 | 0 21 ·5 |
| Mon. | 9 | 183 51 7 ·4 | 189 54 32 ·1 | 1 38 1 ·8 | 2 9 21 ·0 | 1 ·6 | 1 1 ·8 |
| Tues. | 10 | 195 55 41 ·8 | 201 54 53 ·5 | 2 39 1 ·8 | 3 6 47 ·0 | 2 ·6 | 1 42 ·0 |
| Wed. | 11 | 207 52 28 ·2 | 213 48 47 ·2 | 3 32 22 ·4 | 3 55 34 ·3 | 3 ·6 | 2 23 ·0 |
| Thur. | 12 | 219 44 15 ·1 | 225 39 19 ·2 | 4 16 10 ·6 | 4 34 1 ·4 | 4 ·6 | 3 5 ·9 |
| Frid. | 13 | 231 34 27 ·5 | 237 30 10 ·2 | 4 48 57 ·3 | 5 0 49 ·4 | 5 ·6 | 3 51 ·2 |
| Sat. | 14 | 243 26 59 ·1 | 249 25 26 ·6 | 5 9 30 ·0 | 5 14 52 ·8 | 6 ·6 | 4 39 ·5 |
| *Sun.* | 15 | 255 26 6 ·8 | 261 29 33 ·9 | 5 16 52 ·1 | 5 15 21 ·2 | 7 ·6 | 5 30 ·7 |
| Mon. | 16 | 267 36 21 ·2 | 273 47 2 ·8 | 5 10 16 ·9 | 5 1 34 ·9 | 8 ·6 | 6 24 ·0 |
| Tues. | 17 | 280 2 10 ·9 | 286 22 15 ·2 | 4 49 14 ·0 | 4 33 13 ·4 | 9 ·6 | 7 18 ·3 |
| Wed. | 18 | 292 47 42 ·7 | 299 18 57 ·1 | 4 13 34 ·3 | 3 50 22 ·4 | 10 ·6 | 8 12 ·4 |
| Thur. | 19 | 305 56 16 ·9 | 312 39 55 ·1 | 3 23 45 ·2 | 2 53 55 ·6 | 11 ·6 | 9 5 ·1 |
| Frid. | 20 | 319 29 57 ·2 | 326 26 21 ·3 | 2 21 8 ·8 | 1 45 48 ·0 | 12 ·6 | 9 56 ·3 |
| Sat. | 21 | 333 28 56 ·8 | 340 37 23 ·5 | S.1 8 19 ·9 | S.0 29 17 ·2 | 13 ·6 | 10 46 ·1 |
| *Sun.* | 22 | 347 51 12 ·6 | 355 9 46 ·1 | N.0 10 42 ·0 | N.0 50 55 ·7 | 14 ·6 | 11 35 ·5 |
| Mon. | 23 | 2 32 17 ·6 | 9 57 52 ·3 | 1 30 39 ·2 | 2 9 5 ·8 | 15 ·6 | 12 25 ·5 |
| Tues. | 24 | 17 25 31 ·8 | 24 54 12 ·5 | 2 45 29 ·3 | 3 19 6 ·5 | 16 ·6 | 13 17 ·5 |
| Wed. | 25 | 32 22 52 ·1 | 39 50 27 ·7 | 3 49 18 ·2 | 4 15 29 ·9 | 17 ·6 | 14 12 ·6 |
| Thur. | 26 | 47 16 1 ·3 | 54 38 39 ·4 | 4 37 15 ·8 | 4 54 15 ·3 | 18 ·6 | 15 11 ·2 |
| Frid. | 27 | 61 57 37 ·2 | 69 12 16 ·8 | 5 6 18 ·4 | 5 13 19 ·7 | 19 ·6 | 16 12 ·6 |
| Sat. | 28 | 76 22 11 ·3 | 83 26 58 ·9 | 5 15 22 ·5 | 5 12 34 ·5 | 20 ·6 | 17 15 ·1 |
| *Sun.* | 29 | 90 26 29 ·5 | 97 20 38 ·2 | 5 5 9 ·1 | 4 53 22 ·6 | 21 ·6 | 18 16 ·0 |
| Mon. | 30 | 104 9 28 ·2 | 110 53 5 ·7 | 4 37 36 ·1 | 4 18 10 ·5 | 22 ·6 | 19 13 ·2 |
| Tues. | 31 | 117 31 44 ·4 | 124 5 37 ·8 | N.3 55 30 ·6 | N.3 29 59 ·3 | 23 ·6 | 20 5 ·8 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SUNDAY* 1. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 5 13 56 ·88 | N.28 19 28 ·0 | 24 ·52 |
| 1 | 5 16 33 ·83 | 28 21 55 ·1 | 22 ·63 |
| 2 | 5 19 10 ·80 | 28 24 10 ·9 | 20 ·75 |
| 3 | 5 21 47 ·77 | 28 26 15 ·4 | 18 ·87 |
| 4 | 5 24 24 ·74 | 28 28 8 ·6 | 16 ·97 |
| 5 | 5 27 1 ·70 | 28 29 50 ·4 | 15 ·08 |
| 6 | 5 29 38 ·63 | 28 31 20 ·9 | 13 ·18 |
| 7 | 5 32 15 ·54 | 28 32 40 ·0 | 11 ·32 |
| 8 | 5 34 52 ·40 | 28 33 47 ·9 | 9 ·42 |
| 9 | 5 37 29 ·22 | 28 34 44 ·4 | 7 ·55 |
| 10 | 5 40 5 ·98 | 28 35 29 ·7 | 5 ·65 |
| 11 | 5 42 42 ·67 | 28 36 3 ·6 | 3 ·78 |
| 12 | 5 45 19 ·28 | 28 36 26 ·3 | 1 ·90 |
| 13 | 5 47 55 ·81 | 28 36 37 ·7 | 0 ·03 |
| 14 | 5 50 32 ·24 | 28 36 37 ·9 | 1 ·83 |
| 15 | 5 53 8 ·57 | 28 36 26 ·9 | 3 ·70 |
| 16 | 5 55 44 ·78 | 28 36 4 ·7 | 5 ·55 |
| 17 | 5 58 20 ·87 | 28 35 31 ·4 | 7 ·42 |
| 18 | 6 0 56 ·82 | 28 34 46 ·9 | 9 ·25 |
| 19 | 6 3 32 ·63 | 28 33 51 ·4 | 11 ·12 |
| 20 | 6 6 8 ·29 | 28 32 44 ·7 | 12 ·95 |
| 21 | 6 8 43 ·80 | 28 31 27 ·0 | 14 ·78 |
| 22 | 6 11 19 ·13 | 28 29 58 ·3 | 16 ·60 |
| 23 | 6 13 54 ·28 | N.28 28 18 ·7 | 18 ·43 |
| | *MONDAY* 2. | | |
| 0 | 6 16 29 ·25 | N.28 26 28 ·1 | 20 ·25 |
| 1 | 6 19 4 ·02 | 28 24 26 ·6 | 22 ·05 |
| 2 | 6 21 38 ·59 | 28 22 14 ·3 | 23 ·85 |
| 3 | 6 24 12 ·94 | 28 19 51 ·2 | 25 ·65 |
| 4 | 6 26 47 ·08 | 28 17 17 ·3 | 27 ·43 |
| 5 | 6 29 20 ·99 | 28 14 32 ·7 | 29 ·20 |
| 6 | 6 31 54 ·66 | 28 11 37 ·5 | 30 ·97 |
| 7 | 6 34 28 ·09 | 28 8 31 ·7 | 32 ·72 |
| 8 | 6 37 1 ·26 | 28 5 15 ·4 | 34 ·47 |
| 9 | 6 39 34 ·17 | 28 1 48 ·6 | 36 ·22 |
| 10 | 6 42 6 ·82 | 27 58 11 ·3 | 37 ·93 |
| 11 | 6 44 39 ·20 | 27 54 23 ·7 | 39 ·65 |
| 12 | 6 47 11 ·29 | 27 50 25 ·8 | 41 ·37 |
| 13 | 6 49 43 ·10 | 27 46 17 ·6 | 43 ·05 |
| 14 | 6 52 14 ·61 | 27 41 59 ·3 | 44 ·75 |
| 15 | 6 54 45 ·82 | 27 37 30 ·8 | 46 ·42 |
| 16 | 6 57 16 ·72 | 27 32 52 ·3 | 48 ·08 |
| 17 | 6 59 47 ·31 | 27 28 3 ·8 | 49 ·73 |
| 18 | 7 2 17 ·58 | 27 23 5 ·4 | 51 ·37 |
| 19 | 7 4 47 ·52 | 27 17 57 ·2 | 53 ·00 |
| 20 | 7 7 17 ·13 | 27 12 39 ·2 | 54 ·62 |
| 21 | 7 9 46 ·41 | 27 7 11 ·5 | 56 ·23 |
| 22 | 7 12 15 ·34 | 27 1 34 ·1 | 57 ·80 |
| 23 | 7 14 43 ·92 | 26 55 47 ·3 | 59 ·40 |
| 24 | 7 17 12 ·15 | N.26 49 50 ·9 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 3. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 7 17 12 ·15 | N.26 49 50 ·9 | 60 ·97 |
| 1 | 7 19 40 ·02 | 26 43 45 ·1 | 62 ·[illegible] |
| 2 | 7 22 7 ·52 | 26 37 30 ·1 | 64 ·[illegible] |
| 3 | 7 24 34 ·66 | 26 31 5 ·7 | 65 ·[illegible] |
| 4 | 7 27 1 ·43 | 26 24 32 ·3 | 67 ·[illegible] |
| 5 | 7 29 27 ·81 | 26 17 49 ·7 | 68 ·[illegible] |
| 6 | 7 31 53 ·82 | 26 10 58 ·2 | 70 ·[illegible] |
| 7 | 7 34 19 ·45 | 26 3 57 ·7 | 71 ·[illegible] |
| 8 | 7 36 44 ·69 | 25 56 48 ·4 | 73 ·[illegible] |
| 9 | 7 39 9 ·53 | 25 49 30 ·4 | 74 ·[illegible] |
| 10 | 7 41 33 ·98 | 25 42 3 ·7 | 75 ·[illegible] |
| 11 | 7 43 58 ·04 | 25 34 28 ·4 | 77 ·[illegible] |
| 12 | 7 46 21 ·69 | 25 26 44 ·6 | 78 ·[illegible] |
| 13 | 7 48 44 ·93 | 25 18 52 ·4 | 80 ·[illegible] |
| 14 | 7 51 7 ·77 | 25 10 51 ·9 | 81 ·[illegible] |
| 15 | 7 53 30 ·21 | 25 2 43 ·2 | 82 ·[illegible] |
| 16 | 7 55 52 ·23 | 24 54 26 ·4 | 84 ·[illegible] |
| 17 | 7 58 13 ·85 | 24 46 1 ·5 | 85 ·[illegible] |
| 18 | 8 0 35 ·05 | 24 37 28 ·6 | 86 ·[illegible] |
| 19 | 8 2 55 ·83 | 24 28 47 ·8 | 88 ·[illegible] |
| 20 | 8 5 16 ·20 | 24 19 59 ·3 | 89 ·[illegible] |
| 21 | 8 7 36 ·14 | 24 11 3 ·0 | 90 ·[illegible] |
| 22 | 8 9 55 ·67 | 24 1 59 ·2 | 91 ·[illegible] |
| 23 | 8 12 14 ·77 | N.23 52 47 ·8 | 93 ·[illegible] |
| | *WEDNESDAY* 4. | | |
| 0 | 8 14 33 ·45 | N.23 43 29 ·0 | 94 ·[illegible] |
| 1 | 8 16 51 ·71 | 23 34 2 ·8 | 95 ·[illegible] |
| 2 | 8 19 9 ·54 | 23 24 29 ·4 | 96 ·[illegible] |
| 3 | 8 21 26 ·95 | 23 14 48 ·9 | 97 ·[illegible] |
| 4 | 8 23 43 ·94 | 23 5 1 ·3 | 99 ·[illegible] |
| 5 | 8 26 0 ·50 | 22 55 6 ·7 | 100 ·[illegible] |
| 6 | 8 28 16 ·64 | 22 45 5 ·2 | 101 ·[illegible] |
| 7 | 8 30 32 ·35 | 22 34 56 ·9 | 102 ·[illegible] |
| 8 | 8 32 47 ·64 | 22 24 42 ·0 | 103 ·[illegible] |
| 9 | 8 35 2 ·51 | 22 14 20 ·4 | 104 ·[illegible] |
| 10 | 8 37 16 ·96 | 22 3 52 ·3 | 105 ·[illegible] |
| 11 | 8 39 30 ·98 | 21 53 17 ·8 | 106 ·[illegible] |
| 12 | 8 41 44 ·58 | 21 42 36 ·9 | 107 ·[illegible] |
| 13 | 8 43 57 ·76 | 21 31 49 ·8 | 108 ·[illegible] |
| 14 | 8 46 10 ·53 | 21 20 56 ·6 | 109 ·[illegible] |
| 15 | 8 48 22 ·87 | 21 9 57 ·3 | 110 ·[illegible] |
| 16 | 8 50 34 ·81 | 20 58 52 ·0 | 111 ·[illegible] |
| 17 | 8 52 46 ·32 | 20 47 40 ·8 | 112 ·[illegible] |
| 18 | 8 54 57 ·42 | 20 36 23 ·9 | 113 ·[illegible] |
| 19 | 8 57 8 ·12 | 20 25 1 ·2 | 114 ·[illegible] |
| 20 | 8 59 18 ·40 | 20 13 33 ·0 | 115 ·[illegible] |
| 21 | 9 1 28 ·27 | 20 1 59 ·2 | 116 ·[illegible] |
| 22 | 9 3 37 ·74 | 19 50 19 ·9 | 117 ·[illegible] |
| 23 | 9 5 46 ·80 | 19 38 35 ·4 | 118 ·[illegible] |
| 24 | 9 7 55 ·46 | N.19 26 45 ·5 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *THURSDAY* 5. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 9 7 55 ·46 | N. 19 26 45 ·5 | 119 ·17 |
| 1 | 9 10 3 ·72 | 19 14 50 ·5 | 120 ·02 |
| 2 | 9 12 11 ·59 | 19 2 50 ·4 | 120 ·87 |
| 3 | 9 14 19 ·06 | 18 50 45 ·2 | 121 ·67 |
| 4 | 9 16 26 ·14 | 18 38 35 ·2 | 122 ·47 |
| 5 | 9 18 32 ·83 | 18 26 20 ·4 | 123 ·28 |
| 6 | 9 20 39 ·14 | 18 14 0 ·7 | 124 ·03 |
| 7 | 9 22 45 ·06 | 18 1 36 ·5 | 124 ·82 |
| 8 | 9 24 50 ·60 | 17 49 7 ·6 | 125 ·55 |
| 9 | 9 26 55 ·76 | 17 36 34 ·3 | 126 ·28 |
| 10 | 9 29 0 ·54 | 17 23 56 ·6 | 127 ·02 |
| 11 | 9 31 4 ·96 | 17 11 14 ·5 | 127 ·72 |
| 12 | 9 33 9 ·00 | 16 58 28 ·2 | 128 ·42 |
| 13 | 9 35 12 ·68 | 16 45 37 ·7 | 129 ·08 |
| 14 | 9 37 16 ·00 | 16 32 43 ·2 | 129 ·75 |
| 15 | 9 39 18 ·96 | 16 19 44 ·7 | 130 ·42 |
| 16 | 9 41 21 ·56 | 16 6 42 ·2 | 131 ·03 |
| 17 | 9 43 23 ·81 | 15 53 36 ·0 | 131 ·68 |
| 18 | 9 45 25 ·72 | 15 40 25 ·9 | 132 ·27 |
| 19 | 9 47 27 ·28 | 15 27 12 ·3 | 132 ·88 |
| 20 | 9 49 28 ·49 | 15 13 55 ·0 | 133 ·47 |
| 21 | 9 51 29 ·37 | 15 0 34 ·2 | 134 ·03 |
| 22 | 9 53 29 ·91 | 14 47 10 ·0 | 134 ·60 |
| 23 | 9 55 30 ·13 | N. 14 33 42 ·4 | 135 ·13 |
| | *FRIDAY* 6. | | |
| 0 | 9 57 30 ·01 | N. 14 20 11 ·6 | 135 ·67 |
| 1 | 9 59 29 ·57 | 14 6 37 ·6 | 136 ·18 |
| 2 | 10 1 28 ·82 | 13 53 0 ·5 | 136 ·70 |
| 3 | 10 3 27 ·75 | 13 39 20 ·3 | 137 ·20 |
| 4 | 10 5 26 ·38 | 13 25 37 ·1 | 137 ·67 |
| 5 | 10 7 24 ·69 | 13 11 51 ·1 | 138 ·15 |
| 6 | 10 9 22 ·70 | 12 58 2 ·2 | 138 ·58 |
| 7 | 10 11 20 ·41 | 12 44 10 ·7 | 139 ·05 |
| 8 | 10 13 17 ·83 | 12 30 16 ·4 | 139 ·48 |
| 9 | 10 15 14 ·95 | 12 16 19 ·5 | 139 ·88 |
| 10 | 10 17 11 ·79 | 12 2 20 ·2 | 140 ·32 |
| 11 | 10 19 8 ·35 | 11 48 18 ·3 | 140 ·70 |
| 12 | 10 21 4 ·62 | 11 34 14 ·1 | 141 ·08 |
| 13 | 10 23 0 ·62 | 11 20 7 ·6 | 141 ·47 |
| 14 | 10 24 56 ·35 | 11 5 58 ·8 | 141 ·82 |
| 15 | 10 26 51 ·81 | 10 51 47 ·9 | 142 ·17 |
| 16 | 10 28 47 ·00 | 10 37 34 ·9 | 142 ·52 |
| 17 | 10 30 41 ·94 | 10 23 19 ·8 | 142 ·83 |
| 18 | 10 32 36 ·63 | 10 9 2 ·8 | 143 ·15 |
| 19 | 10 34 31 ·06 | 9 54 43 ·9 | 143 ·47 |
| 20 | 10 36 25 ·25 | 9 40 23 ·1 | 143 ·75 |
| 21 | 10 38 19 ·20 | 9 26 0 ·6 | 144 ·03 |
| 22 | 10 40 12 ·92 | 9 11 36 ·4 | 144 ·30 |
| 23 | 10 42 6 ·40 | 8 57 10 ·6 | 144 ·57 |
| 24 | 10 43 59 ·65 | N. 8 42 43 ·2 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SATURDAY* 7. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 10 43 59 ·65 | N. 8 42 43 ·2 | 144 ·82 |
| 1 | 10 45 52 ·68 | 8 28 14 ·3 | 145 ·05 |
| 2 | 10 47 45 ·50 | 8 13 44 ·0 | 145 ·28 |
| 3 | 10 49 38 ·09 | 7 59 12 ·3 | 145 ·50 |
| 4 | 10 51 30 ·48 | 7 44 39 ·3 | 145 ·72 |
| 5 | 10 53 22 ·66 | 7 30 5 ·1 | 145 ·88 |
| 6 | 10 55 14 ·64 | 7 15 29 ·7 | 146 ·08 |
| 7 | 10 57 6 ·42 | 7 0 53 ·2 | 146 ·27 |
| 8 | 10 58 58 ·00 | 6 46 15 ·6 | 146 ·42 |
| 9 | 11 0 49 ·40 | 6 31 37 ·1 | 146 ·58 |
| 10 | 11 2 40 ·61 | 6 16 57 ·6 | 146 ·72 |
| 11 | 11 4 31 ·64 | 6 2 17 ·3 | 146 ·85 |
| 12 | 11 6 22 ·49 | 5 47 36 ·2 | 146 ·97 |
| 13 | 11 8 13 ·17 | 5 32 54 ·4 | 147 ·08 |
| 14 | 11 10 3 ·68 | 5 18 11 ·9 | 147 ·20 |
| 15 | 11 11 54 ·03 | 5 3 28 ·7 | 147 ·28 |
| 16 | 11 13 44 ·22 | 4 48 45 ·0 | 147 ·37 |
| 17 | 11 15 34 ·25 | 4 34 0 ·8 | 147 ·43 |
| 18 | 11 17 24 ·14 | 4 19 16 ·2 | 147 ·50 |
| 19 | 11 19 13 ·87 | 4 4 31 ·2 | 147 ·57 |
| 20 | 11 21 3 ·47 | 3 49 45 ·8 | 147 ·60 |
| 21 | 11 22 52 ·93 | 3 35 0 ·2 | 147 ·63 |
| 22 | 11 24 42 ·26 | 3 20 14 ·4 | 147 ·67 |
| 23 | 11 26 31 ·45 | N. 3 5 28 ·4 | 147 ·68 |
| | *SUNDAY* 8. | | |
| 0 | 11 28 20 ·53 | N. 2 50 42 ·3 | 147 ·68 |
| 1 | 11 30 9 ·49 | 2 35 56 ·2 | 147 ·70 |
| 2 | 11 31 58 ·33 | 2 21 10 ·0 | 147 ·68 |
| 3 | 11 33 47 ·06 | 2 6 23 ·9 | 147 ·65 |
| 4 | 11 35 35 ·68 | 1 51 38 ·0 | 147 ·63 |
| 5 | 11 37 24 ·21 | 1 36 52 ·2 | 147 ·60 |
| 6 | 11 39 12 ·63 | 1 22 6 ·6 | 147 ·55 |
| 7 | 11 41 0 ·96 | 1 7 21 ·3 | 147 ·48 |
| 8 | 11 42 49 ·19 | 0 52 36 ·4 | 147 ·43 |
| 9 | 11 44 37 ·35 | 0 37 51 ·8 | 147 ·35 |
| 10 | 11 46 25 ·42 | 0 23 7 ·7 | 147 ·27 |
| 11 | 11 48 13 ·41 | N. 0 8 24 ·1 | 147 ·18 |
| 12 | 11 50 1 ·33 | S. 0 6 19 ·0 | 147 ·08 |
| 13 | 11 51 49 ·18 | 0 21 1 ·5 | 146 ·97 |
| 14 | 11 53 36 ·97 | 0 35 43 ·3 | 146 ·87 |
| 15 | 11 55 24 ·70 | 0 50 24 ·5 | 146 ·73 |
| 16 | 11 57 12 ·37 | 1 5 4 ·9 | 146 ·58 |
| 17 | 11 58 59 ·98 | 1 19 44 ·4 | 146 ·47 |
| 18 | 12 0 47 ·55 | 1 34 23 ·2 | 146 ·30 |
| 19 | 12 2 35 ·08 | 1 49 1 ·0 | 146 ·15 |
| 20 | 12 4 22 ·57 | 2 3 37 ·9 | 145 ·97 |
| 21 | 12 6 10 ·03 | 2 18 13 ·7 | 145 ·82 |
| 22 | 12 7 57 ·45 | 2 32 48 ·6 | 145 ·62 |
| 23 | 12 9 44 ·85 | 2 47 22 ·3 | 145 ·42 |
| 24 | 12 11 32 ·23 | S. 3 1 54 ·8 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *MONDAY* 9. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 12 11 32 ·23 | S. 3 1 54 ·8 | 145 ·22 |
| 1 | 12 13 19 ·59 | 3 16 26 ·1 | 145 ·02 |
| 2 | 12 15 6 ·93 | 3 30 56 ·2 | 144 ·80 |
| 3 | 12 16 54 ·27 | 3 45 25 ·0 | 144 ·57 |
| 4 | 12 18 41 ·59 | 3 59 52 ·4 | 144 ·35 |
| 5 | 12 20 28 ·92 | 4 14 18 ·5 | 144 ·10 |
| 6 | 12 22 16 ·25 | 4 28 43 ·1 | 143 ·85 |
| 7 | 12 24 3 ·58 | 4 43 6 ·2 | 143 ·58 |
| 8 | 12 25 50 ·93 | 4 57 27 ·7 | 143 ·33 |
| 9 | 12 27 38 ·28 | 5 11 47 ·7 | 143 ·05 |
| 10 | 12 29 25 ·66 | 5 26 6 ·0 | 142 ·78 |
| 11 | 12 31 13 ·06 | 5 40 22 ·7 | 142 ·48 |
| 12 | 12 33 0 ·49 | 5 54 37 ·6 | 142 ·20 |
| 13 | 12 34 47 ·95 | 6 8 50 ·8 | 141 ·88 |
| 14 | 12 36 35 ·44 | 6 23 2 ·1 | 141 ·57 |
| 15 | 12 38 22 ·97 | 6 37 11 ·5 | 141 ·27 |
| 16 | 12 40 10 ·54 | 6 51 19 ·1 | 140 ·92 |
| 17 | 12 41 58 ·16 | 7 5 24 ·6 | 140 ·60 |
| 18 | 12 43 45 ·83 | 7 19 28 ·2 | 140 ·25 |
| 19 | 12 45 33 ·55 | 7 33 29 ·7 | 139 ·90 |
| 20 | 12 47 21 ·33 | 7 47 29 ·1 | 139 ·53 |
| 21 | 12 49 9 ·17 | 8 1 26 ·3 | 139 ·17 |
| 22 | 12 50 57 ·08 | 8 15 21 ·3 | 138 ·78 |
| 23 | 12 52 45 ·06 | S. 8 29 14 ·0 | 138 ·42 |
| | *TUESDAY* 10. | | |
| 0 | 12 54 33 ·11 | S. 8 43 4 ·5 | 138 ·02 |
| 1 | 12 56 21 ·24 | 8 56 52 ·6 | 137 ·62 |
| 2 | 12 58 9 ·44 | 9 10 38 ·3 | 137 ·22 |
| 3 | 12 59 57 ·74 | 9 24 21 ·6 | 136 ·80 |
| 4 | 13 1 46 ·12 | 9 38 2 ·4 | 136 ·37 |
| 5 | 13 3 34 ·59 | 9 51 40 ·6 | 135 ·95 |
| 6 | 13 5 23 ·16 | 10 5 16 ·3 | 135 ·52 |
| 7 | 13 7 11 ·83 | 10 18 49 ·4 | 135 ·07 |
| 8 | 13 9 0 ·60 | 10 32 19 ·8 | 134 ·62 |
| 9 | 13 10 49 ·48 | 10 45 47 ·5 | 134 ·17 |
| 10 | 13 12 38 ·48 | 10 59 12 ·5 | 133 ·70 |
| 11 | 13 14 27 ·58 | 11 12 34 ·7 | 133 ·22 |
| 12 | 13 16 16 ·81 | 11 25 54 ·0 | 132 ·75 |
| 13 | 13 18 6 ·16 | 11 39 10 ·5 | 132 ·25 |
| 14 | 13 19 55 ·63 | 11 52 24 ·0 | 131 ·77 |
| 15 | 13 21 45 ·24 | 12 5 34 ·6 | 131 ·25 |
| 16 | 13 23 34 ·97 | 12 18 42 ·1 | 130 ·75 |
| 17 | 13 25 24 ·84 | 12 31 46 ·6 | 130 ·22 |
| 18 | 13 27 14 ·85 | 12 44 47 ·9 | 129 ·70 |
| 19 | 13 29 5 ·01 | 12 57 46 ·1 | 129 ·17 |
| 20 | 13 30 55 ·31 | 13 10 41 ·1 | 128 ·62 |
| 21 | 13 32 45 ·76 | 13 23 32 ·8 | 128 ·07 |
| 22 | 13 34 36 ·37 | 13 36 21 ·2 | 127 ·50 |
| 23 | 13 36 27 ·13 | 13 49 6 ·2 | 126 ·95 |
| 24 | 13 38 18 ·05 | S. 14 1 47 ·9 | |

| Hour. | Right Ascension. | Declination. | Diff. for |
|---|---|---|---|
| | *WEDNESDAY* 11. | | |
| | h m s | ° ′ ″ | |
| 0 | 13 38 18 ·05 | S. 14 1 47 ·9 | 12 |
| 1 | 13 40 9 ·13 | 14 14 26 ·1 | 12 |
| 2 | 13 42 0 ·38 | 14 27 0 ·8 | 12 |
| 3 | 13 43 51 ·80 | 14 39 32 ·0 | 12 |
| 4 | 13 45 43 ·40 | 14 51 59 ·6 | 12 |
| 5 | 13 47 35 ·17 | 15 4 23 ·6 | 12 |
| 6 | 13 49 27 ·12 | 15 16 43 ·9 | 12 |
| 7 | 13 51 19 ·25 | 15 29 0 ·5 | 12 |
| 8 | 13 53 11 ·57 | 15 41 13 ·3 | 12 |
| 9 | 13 55 4 ·08 | 15 53 22 ·3 | 12 |
| 10 | 13 56 56 ·78 | 16 5 27 ·4 | 12 |
| 11 | 13 58 49 ·68 | 16 17 28 ·6 | 11 |
| 12 | 14 0 42 ·78 | 16 29 25 ·9 | 11 |
| 13 | 14 2 36 ·08 | 16 41 19 ·2 | 11 |
| 14 | 14 4 29 ·58 | 16 53 8 ·4 | 117 |
| 15 | 14 6 23 ·29 | 17 4 53 ·5 | 116 |
| 16 | 14 8 17 ·22 | 17 16 34 ·4 | 116 |
| 17 | 14 10 11 ·35 | 17 28 11 ·2 | 115 |
| 18 | 14 12 5 ·70 | 17 39 43 ·8 | 114 |
| 19 | 14 14 0 ·27 | 17 51 12 ·0 | 114 |
| 20 | 14 15 55 ·06 | 18 2 36 ·0 | 113 |
| 21 | 14 17 50 ·07 | 18 13 55 ·5 | 112 |
| 22 | 14 19 45 ·32 | 18 25 10 ·6 | 111 |
| 23 | 14 21 40 ·79 | S. 18 36 21 ·3 | 111 |
| | *THURSDAY* 12. | | |
| 0 | 14 23 36 ·49 | S. 18 47 27 ·4 | 110 |
| 1 | 14 25 32 ·43 | 18 58 29 ·0 | 109 |
| 2 | 14 27 28 ·60 | 19 9 25 ·9 | 108 |
| 3 | 14 29 25 ·02 | 19 20 18 ·2 | 107 |
| 4 | 14 31 21 ·67 | 19 31 5 ·8 | 107 |
| 5 | 14 33 18 ·58 | 19 41 48 ·6 | 106 |
| 6 | 14 35 15 ·72 | 19 52 26 ·6 | 105 |
| 7 | 14 37 13 ·12 | 20 2 59 ·7 | 104 |
| 8 | 14 39 10 ·77 | 20 13 27 ·9 | 103 |
| 9 | 14 41 8 ·67 | 20 23 51 ·2 | 103 |
| 10 | 14 43 6 ·82 | 20 34 9 ·4 | 102 |
| 11 | 14 45 5 ·24 | 20 44 22 ·6 | 101 |
| 12 | 14 47 3 ·91 | 20 54 30 ·7 | 100 |
| 13 | 14 49 2 ·84 | 21 4 33 ·6 | 99 |
| 14 | 14 51 2 ·04 | 21 14 31 ·3 | 98 |
| 15 | 14 53 1 ·50 | 21 24 23 ·7 | 97 |
| 16 | 14 55 1 ·22 | 21 34 10 ·9 | 96 |
| 17 | 14 57 1 ·22 | 21 43 52 ·6 | 96 |
| 18 | 14 59 1 ·48 | 21 53 29 ·0 | 95 |
| 19 | 15 1 2 ·01 | 22 2 59 ·9 | 94 |
| 20 | 15 3 2 ·82 | 22 12 25 ·2 | 93 |
| 21 | 15 5 3 ·90 | 22 21 45 ·1 | 92 |
| 22 | 15 7 5 ·25 | 22 30 59 ·3 | 91 |
| 23 | 15 9 6 ·88 | 22 40 7 ·8 | 90 |
| 24 | 15 11 8 ·79 | S. 22 49 10 ·6 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *FRIDAY* 13. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 15 11 8·79 | S. 22 49 10·6 | 89·52 |
| 1 | 15 13 10·98 | 22 58 7·7 | 88·53 |
| 2 | 15 15 13·44 | 23 6 58·9 | 87·57 |
| 3 | 15 17 16·19 | 23 15 44·3 | 86·57 |
| 4 | 15 19 19·22 | 23 24 23·7 | 85·58 |
| 5 | 15 21 22·53 | 23 32 57·2 | 84·57 |
| 6 | 15 23 26·12 | 23 41 24·6 | 83·57 |
| 7 | 15 25 30·00 | 23 49 46·0 | 82·55 |
| 8 | 15 27 34·15 | 23 58 1·3 | 81·50 |
| 9 | 15 29 38·60 | 24 6 10·3 | 80·48 |
| 10 | 15 31 43·33 | 24 14 13·2 | 79·43 |
| 11 | 15 33 48·34 | 24 22 9·8 | 78·37 |
| 12 | 15 35 53·64 | 24 30 0·0 | 77·32 |
| 13 | 15 37 59·23 | 24 37 43·9 | 76·23 |
| 14 | 15 40 5·10 | 24 45 21·3 | 75·15 |
| 15 | 15 42 11·26 | 24 52 52·2 | 74·08 |
| 16 | 15 44 17·71 | 25 0 16·7 | 72·97 |
| 17 | 15 46 24·44 | 25 7 34·5 | 71·87 |
| 18 | 15 48 31·45 | 25 14 45·7 | 70·75 |
| 19 | 15 50 38·75 | 25 21 50·2 | 69·63 |
| 20 | 15 52 46·34 | 25 28 48·0 | 68·50 |
| 21 | 15 54 54·20 | 25 35 39·0 | 67·35 |
| 22 | 15 57 2·35 | 25 42 23·1 | 66·22 |
| 23 | 15 59 10·79 | S. 25 49 0·4 | 65·05 |
| | *SATURDAY* 14. | | |
| 0 | 16 1 19·50 | S. 25 55 30·7 | 63·88 |
| 1 | 16 3 28·50 | 26 1 54·0 | 62·73 |
| 2 | 16 5 37·77 | 26 8 10·4 | 61·53 |
| 3 | 16 7 47·32 | 26 14 19·6 | 60·35 |
| 4 | 16 9 57·15 | 26 20 21·7 | 59·15 |
| 5 | 16 12 7·25 | 26 26 16·6 | 57·95 |
| 6 | 16 14 17·63 | 26 32 4·3 | 56·73 |
| 7 | 16 16 28·28 | 26 37 44·7 | 55·52 |
| 8 | 16 18 39·20 | 26 43 17·8 | 54·28 |
| 9 | 16 20 50·39 | 26 48 43·5 | 53·05 |
| 10 | 16 23 1·85 | 26 54 1·8 | 51·80 |
| 11 | 16 25 13·57 | 26 59 12·6 | 50·55 |
| 12 | 16 27 25·56 | 27 4 15·9 | 49·30 |
| 13 | 16 29 37·81 | 27 9 11·7 | 48·02 |
| 14 | 16 31 50·32 | 27 13 59·8 | 46·75 |
| 15 | 16 34 3·08 | 27 18 40·3 | 45·47 |
| 16 | 16 36 16·10 | 27 23 13·1 | 44·17 |
| 17 | 16 38 29·37 | 27 27 38·1 | 42·88 |
| 18 | 16 40 42·90 | 27 31 55·4 | 41·57 |
| 19 | 16 42 56·67 | 27 36 4·8 | 40·25 |
| 20 | 16 45 10·68 | 27 40 6·3 | 38·92 |
| 21 | 16 47 24·94 | 27 43 59·8 | 37·60 |
| 22 | 16 49 39·43 | 27 47 45·4 | 36·27 |
| 23 | 16 51 54·16 | 27 51 23·0 | 34·92 |
| 24 | 16 54 9·12 | S. 27 54 52·5 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SUNDAY* 15. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 16 54 9·12 | S. 27 54 52·5 | 33·57 |
| 1 | 16 56 24·31 | 27 58 13·9 | 32·20 |
| 2 | 16 58 39·73 | 28 1 27·1 | 30·83 |
| 3 | 17 0 55·37 | 28 4 32·1 | 29·47 |
| 4 | 17 3 11·22 | 28 7 28·9 | 28·08 |
| 5 | 17 5 27·30 | 28 10 17·4 | 26·72 |
| 6 | 17 7 43·58 | 28 12 57·7 | 25·30 |
| 7 | 17 10 0·07 | 28 15 29·5 | 23·92 |
| 8 | 17 12 16·77 | 28 17 53·0 | 22·52 |
| 9 | 17 14 33·66 | 28 20 8·1 | 21·10 |
| 10 | 17 16 50·75 | 28 22 14·7 | 19·70 |
| 11 | 17 19 8·03 | 28 24 12·9 | 18·27 |
| 12 | 17 21 25·50 | 28 26 2·5 | 16·85 |
| 13 | 17 23 43·15 | 28 27 43·6 | 15·42 |
| 14 | 17 26 0·98 | 28 29 16·1 | 13·97 |
| 15 | 17 28 18·98 | 28 30 39·9 | 12·55 |
| 16 | 17 30 37·15 | 28 31 55·2 | 11·08 |
| 17 | 17 32 55·49 | 28 33 1·7 | 9·63 |
| 18 | 17 35 13·99 | 28 33 59·5 | 8·17 |
| 19 | 17 37 32·64 | 28 34 48·5 | 6·72 |
| 20 | 17 39 51·45 | 28 35 28·8 | 5·25 |
| 21 | 17 42 10·40 | 28 36 0·3 | 3·77 |
| 22 | 17 44 29·50 | 28 36 22·9 | 2·28 |
| 23 | 17 46 48·73 | S. 28 36 36·6 | 0·82 |
| | *MONDAY* 16. | | |
| 0 | 17 49 8·10 | S. 28 36 41·5 | 0·68 |
| 1 | 17 51 27·60 | 28 36 37·4 | 2·17 |
| 2 | 17 53 47·21 | 28 36 24·4 | 3·67 |
| 3 | 17 56 6·95 | 28 36 2·4 | 5·15 |
| 4 | 17 58 26·79 | 28 35 31·5 | 6·67 |
| 5 | 18 0 46·75 | 28 34 51·5 | 8·17 |
| 6 | 18 3 6·80 | 28 34 2·5 | 9·67 |
| 7 | 18 5 26·96 | 28 33 4·5 | 11·18 |
| 8 | 18 7 47·20 | 28 31 57·4 | 12·70 |
| 9 | 18 10 7·54 | 28 30 41·2 | 14·22 |
| 10 | 18 12 27·95 | 28 29 15·9 | 15·73 |
| 11 | 18 14 48·44 | 28 27 41·5 | 17·25 |
| 12 | 18 17 9·00 | 28 25 58·0 | 18·77 |
| 13 | 18 19 29·63 | 28 24 5·4 | 20·30 |
| 14 | 18 21 50·32 | 28 22 3·6 | 21·83 |
| 15 | 18 24 11·07 | 28 19 52·6 | 23·35 |
| 16 | 18 26 31·87 | 28 17 32·5 | 24·88 |
| 17 | 18 28 52·71 | 28 15 3·2 | 26·42 |
| 18 | 18 31 13·59 | 28 12 24·7 | 27·95 |
| 19 | 18 33 34·51 | 28 9 37·0 | 29·48 |
| 20 | 18 35 55·46 | 28 6 40·1 | 31·02 |
| 21 | 18 38 16·43 | 28 3 34·0 | 32·55 |
| 22 | 18 40 37·42 | 28 0 18·7 | 34·08 |
| 23 | 18 42 58·42 | 27 56 54·2 | 35·62 |
| 24 | 18 45 19·44 | S. 27 53 20·5 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 17. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 18 45 19·44 | S. 27 53 20·5 | 37·15 |
| 1 | 18 47 40·46 | 27 49 37·6 | 38·70 |
| 2 | 18 50 1·48 | 27 45 45·4 | 40·23 |
| 3 | 18 52 22·49 | 27 41 44·0 | 41·77 |
| 4 | 18 54 43·48 | 27 37 33·4 | 43·30 |
| 5 | 18 57 4·47 | 27 33 13·6 | 44·83 |
| 6 | 18 59 25·43 | 27 28 44·6 | 46·37 |
| 7 | 19 1 46·37 | 27 24 6·4 | 47·90 |
| 8 | 19 4 7·27 | 27 19 19·0 | 49·43 |
| 9 | 19 6 28·15 | 27 14 22·4 | 50·97 |
| 10 | 19 8 48·98 | 27 9 16·6 | 52·48 |
| 11 | 19 11 9·76 | 27 4 1·7 | 54·02 |
| 12 | 19 13 30·50 | 26 58 37·6 | 55·55 |
| 13 | 19 15 51·19 | 26 53 4·3 | 57·05 |
| 14 | 19 18 11·81 | 26 47 22·0 | 58·60 |
| 15 | 19 20 32·38 | 26 41 30·4 | 60·08 |
| 16 | 19 22 52·88 | 26 35 29·9 | 61·62 |
| 17 | 19 25 13·30 | 26 29 20·2 | 63·13 |
| 18 | 19 27 33·66 | 26 23 1·4 | 64·62 |
| 19 | 19 29 53·93 | 26 16 33·7 | 66·15 |
| 20 | 19 32 14·12 | 26 9 56·8 | 67·62 |
| 21 | 19 34 34·23 | 26 3 11·1 | 69·13 |
| 22 | 19 36 54·24 | 25 56 16·3 | 70·62 |
| 23 | 19 39 14·17 | S. 25 49 12·6 | 72·12 |
| | *WEDNESDAY* 18. | | |
| 0 | 19 41 33·99 | S. 25 41 59·9 | 73·58 |
| 1 | 19 43 53·71 | 25 34 38·4 | 75·07 |
| 2 | 19 46 13·33 | 25 27 8·0 | 76·55 |
| 3 | 19 48 32·85 | 25 19 28·7 | 78·00 |
| 4 | 19 50 52·25 | 25 11 40·7 | 79·48 |
| 5 | 19 53 11·54 | 25 3 43·8 | 80·93 |
| 6 | 19 55 30·71 | 24 55 38·2 | 82·38 |
| 7 | 19 57 49·77 | 24 47 23·9 | 83·83 |
| 8 | 20 0 8·70 | 24 39 0·9 | 85·28 |
| 9 | 20 2 27·50 | 24 30 29·2 | 86·72 |
| 10 | 20 4 46·18 | 24 21 48·9 | 88·15 |
| 11 | 20 7 4·73 | 24 13 0·0 | 89·58 |
| 12 | 20 9 23·15 | 24 4 2·5 | 91·00 |
| 13 | 20 11 41·43 | 23 54 56·5 | 92·42 |
| 14 | 20 13 59·57 | 23 45 42·0 | 93·82 |
| 15 | 20 16 17·57 | 23 36 19·1 | 95·22 |
| 16 | 20 18 35·43 | 23 26 47·8 | 96·60 |
| 17 | 20 20 53·15 | 23 17 8·2 | 98·00 |
| 18 | 20 23 10·73 | 23 7 20·2 | 99·37 |
| 19 | 20 25 28·16 | 22 57 24·0 | 100·75 |
| 20 | 20 27 45·44 | 22 47 19·5 | 102·10 |
| 21 | 20 30 2·57 | 22 37 6·9 | 103·45 |
| 22 | 20 32 19·54 | 22 26 46·2 | 104·80 |
| 23 | 20 34 36·37 | 22 16 17·4 | 106·15 |
| [illegible] | [illegible] 36 53·05 | S. 22 5 40·5 | |

| Hour. | Right Ascension. | Declination. |
|---|---|---|
| | *THURSDAY* 19. | |
| | h m s | ° ′ ″ |
| 0 | 20 36 53·05 | S. 22 5 40·5 |
| 1 | 20 39 9·57 | 21 54 55·7 |
| 2 | 20 41 25·94 | 21 44 3·0 |
| 3 | 20 43 42·16 | 21 33 2·4 |
| 4 | 20 45 58·22 | 21 21 53·9 |
| 5 | 20 48 14·12 | 21 10 37·7 |
| 6 | 20 50 29·86 | 20 59 13·8 |
| 7 | 20 52 45·45 | 20 47 42·2 |
| 8 | 20 55 0·87 | 20 36 3·0 |
| 9 | 20 57 16·14 | 20 24 16·2 |
| 10 | 20 59 31·26 | 20 12 21·9 |
| 11 | 21 1 46·21 | 20 0 20·1 |
| 12 | 21 4 1·00 | 19 48 11·0 |
| 13 | 21 6 15·64 | 19 35 54·5 |
| 14 | 21 8 30·12 | 19 23 30·7 |
| 15 | 21 10 44·44 | 19 10 59·7 |
| 16 | 21 12 58·61 | 18 58 21·6 |
| 17 | 21 15 12·62 | 18 45 36·4 |
| 18 | 21 17 26·48 | 18 32 44·2 |
| 19 | 21 19 40·18 | 18 19 45·0 |
| 20 | 21 21 53·73 | 18 6 38·9 |
| 21 | 21 24 7·13 | 17 53 26·0 |
| 22 | 21 26 20·38 | 17 40 6·4 |
| 23 | 21 28 33·49 | S. 17 26 40·0 |
| | *FRIDAY* 20. | |
| 0 | 21 30 46·44 | S. 17 13 7·1 |
| 1 | 21 32 59·25 | 16 59 27·6 |
| 2 | 21 35 11·92 | 16 45 41·7 |
| 3 | 21 37 24·44 | 16 31 49·4 |
| 4 | 21 39 36·82 | 16 17 50·7 |
| 5 | 21 41 49·07 | 16 3 45·7 |
| 6 | 21 44 1·17 | 15 49 34·6 |
| 7 | 21 46 13·15 | 15 35 17·4 |
| 8 | 21 48 24·98 | 15 20 54·1 |
| 9 | 21 50 36·69 | 15 6 24·9 |
| 10 | 21 52 48·27 | 14 51 49·7 |
| 11 | 21 54 59·72 | 14 37 8·8 |
| 12 | 21 57 11·05 | 14 22 22·1 |
| 13 | 21 59 22·26 | 14 7 29·7 |
| 14 | 22 1 33·35 | 13 52 31·8 |
| 15 | 22 3 44·32 | 13 37 28·4 |
| 16 | 22 5 55·18 | 13 22 19·5 |
| 17 | 22 8 5·93 | 13 7 5·3 |
| 18 | 22 10 16·58 | 12 51 45·9 |
| 19 | 22 12 27·11 | 12 36 21·2 |
| 20 | 22 14 37·55 | 12 20 51·5 |
| 21 | 22 16 47·89 | 12 5 16·8 |
| 22 | 22 18 58·13 | 11 49 37·1 |
| 23 | 22 21 8·28 | 11 33 52·6 |
| 24 | 22 23 18·34 | S. 11 18 3·3 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| ıt Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|
| *SATURDAY* 21. | | |
| m s | ° ′ ″ | ″ |
| 23 18 ·34 | S. 11 18 3 ·3 | 158 ·98 |
| 25 28 ·32 | 11 2 9 ·4 | 159 ·77 |
| 27 38 ·21 | 10 46 10 ·8 | 160 ·50 |
| 29 48 ·02 | 10 30 7 ·8 | 161 ·23 |
| 31 57 ·76 | 10 14 0 ·4 | 161 ·95 |
| 34 7 ·43 | 9 57 48 ·7 | 162 ·67 |
| 36 17 ·03 | 9 41 32 ·7 | 163 ·35 |
| 38 26 ·57 | 9 25 12 ·6 | 164 ·03 |
| 40 36 ·04 | 9 8 48 ·4 | 164 ·67 |
| 42 45 ·47 | 8 52 20 ·4 | 165 ·33 |
| 44 54 ·83 | 8 35 48 ·4 | 165 ·95 |
| 47 4 ·15 | 8 19 12 ·7 | 166 ·57 |
| 49 13 ·43 | 8 2 33 ·3 | 167 ·17 |
| 51 22 ·66 | 7 45 50 ·3 | 167 ·73 |
| 53 31 ·86 | 7 29 3 ·9 | 168 ·30 |
| 55 41 ·03 | 7 12 14 ·1 | 168 ·85 |
| 57 50 ·17 | 6 55 21 ·0 | 169 ·38 |
| 59 59 ·29 | 6 38 24 ·7 | 169 ·90 |
| 2 8 ·38 | 6 21 25 ·3 | 170 ·40 |
| 4 17 ·46 | 6 4 22 ·9 | 170 ·88 |
| 6 26 ·53 | 5 47 17 ·6 | 171 ·35 |
| 8 35 ·59 | 5 30 9 ·5 | 171 ·80 |
| 10 44 ·65 | 5 12 58 ·7 | 172 ·23 |
| 12 53 ·71 | S. 4 55 45 ·3 | 172 ·65 |
| *SUNDAY* 22. | | |
| 15 2 ·78 | S. 4 38 29 ·4 | 173 ·05 |
| 17 11 ·86 | 4 21 11 ·1 | 173 ·43 |
| 19 20 ·95 | 4 3 50 ·5 | 173 ·78 |
| 21 30 ·07 | 3 46 27 ·8 | 174 ·15 |
| 23 39 ·21 | 3 29 2 ·9 | 174 ·47 |
| 25 48 ·38 | 3 11 36 ·1 | 174 ·78 |
| 27 57 ·58 | 2 54 7 ·4 | 175 ·08 |
| 30 6 ·82 | 2 36 36 ·9 | 175 ·35 |
| 32 16 ·11 | 2 19 4 ·8 | 175 ·62 |
| 34 25 ·44 | 2 1 31 ·1 | 175 ·87 |
| 36 34 ·83 | 1 43 55 ·9 | 176 ·08 |
| 38 44 ·27 | 1 26 19 ·4 | 176 ·28 |
| 40 53 ·78 | 1 8 41 ·7 | 176 ·48 |
| 43 3 ·36 | 0 51 2 ·8 | 176 ·63 |
| 45 13 ·00 | 0 33 23 ·0 | 176 ·80 |
| 47 22 ·73 | S. 0 15 42 ·2 | 176 ·93 |
| 49 32 ·53 | N. 0 1 59 ·4 | 177 ·05 |
| 51 42 ·42 | 0 19 41 ·7 | 177 ·13 |
| 53 52 ·41 | 0 37 24 ·5 | 177 ·22 |
| 56 2 ·49 | 0 55 7 ·8 | 177 ·27 |
| 58 12 ·67 | 1 12 51 ·4 | 177 ·32 |
| 0 22 ·96 | 1 30 35 ·3 | 177 ·32 |
| 2 33 ·36 | 1 48 19 ·2 | 177 ·33 |
| 4 43 ·87 | 2 6 3 ·2 | 177 ·32 |
| 6 54 ·50 | N. 2 23 47 ·1 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| *MONDAY* 23. | | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 0 6 54 ·50 | N. 2 23 47 ·1 | 177 ·27 |
| 1 | 0 9 5 ·26 | 2 41 30 ·7 | 177 ·22 |
| 2 | 0 11 16 ·14 | 2 59 14 ·0 | 177 ·15 |
| 3 | 0 13 27 ·17 | 3 16 56 ·9 | 177 ·05 |
| 4 | 0 15 38 ·33 | 3 34 39 ·2 | 176 ·92 |
| 5 | 0 17 49 ·63 | 3 52 20 ·7 | 176 ·80 |
| 6 | 0 20 1 ·09 | 4 10 1 ·5 | 176 ·63 |
| 7 | 0 22 12 ·69 | 4 27 41 ·3 | 176 ·47 |
| 8 | 0 24 24 ·46 | 4 45 20 ·1 | 176 ·28 |
| 9 | 0 26 36 ·39 | 5 2 57 ·8 | 176 ·05 |
| 10 | 0 28 48 ·49 | 5 20 34 ·1 | 175 ·83 |
| 11 | 0 31 0 ·77 | 5 38 9 ·1 | 175 ·57 |
| 12 | 0 33 13 ·22 | 5 55 42 ·5 | 175 ·30 |
| 13 | 0 35 25 ·86 | 6 13 14 ·3 | 175 ·00 |
| 14 | 0 37 38 ·68 | 6 30 44 ·3 | 174 ·70 |
| 15 | 0 39 51 ·70 | 6 48 12 ·5 | 174 ·37 |
| 16 | 0 42 4 ·92 | 7 5 38 ·7 | 174 ·00 |
| 17 | 0 44 18 ·33 | 7 23 2 ·7 | 173 ·63 |
| 18 | 0 46 31 ·95 | 7 40 24 ·5 | 173 ·23 |
| 19 | 0 48 45 ·79 | 7 57 43 ·9 | 172 ·83 |
| 20 | 0 50 59 ·84 | 8 15 0 ·9 | 172 ·38 |
| 21 | 0 53 14 ·11 | 8 32 15 ·2 | 171 ·93 |
| 22 | 0 55 28 ·60 | 8 49 26 ·8 | 171 ·45 |
| 23 | 0 57 43 ·32 | N. 9 6 35 ·5 | 170 ·97 |
| *TUESDAY* 24. | | | |
| 0 | 0 59 58 ·27 | N. 9 23 41 ·3 | 170 ·45 |
| 1 | 1 2 13 ·46 | 9 40 44 ·0 | 169 ·90 |
| 2 | 1 4 28 ·88 | 9 57 43 ·4 | 169 ·35 |
| 3 | 1 6 44 ·56 | 10 14 39 ·5 | 168 ·77 |
| 4 | 1 9 0 ·48 | 10 31 32 ·1 | 168 ·17 |
| 5 | 1 11 16 ·66 | 10 48 21 ·1 | 167 ·57 |
| 6 | 1 13 33 ·09 | 11 5 6 ·5 | 166 ·90 |
| 7 | 1 15 49 ·79 | 11 21 47 ·9 | 166 ·27 |
| 8 | 1 18 6 ·75 | 11 38 25 ·5 | 165 ·58 |
| 9 | 1 20 23 ·98 | 11 54 58 ·9 | 164 ·85 |
| 10 | 1 22 41 ·48 | 12 11 28 ·1 | 164 ·15 |
| 11 | 1 24 59 ·26 | 12 27 53 ·0 | 163 ·42 |
| 12 | 1 27 17 ·32 | 12 44 13 ·5 | 162 ·65 |
| 13 | 1 29 35 ·66 | 13 0 29 ·4 | 161 ·87 |
| 14 | 1 31 54 ·29 | 13 16 40 ·6 | 161 ·07 |
| 15 | 1 34 13 ·21 | 13 32 47 ·0 | 160 ·23 |
| 16 | 1 36 32 ·42 | 13 48 48 ·4 | 159 ·40 |
| 17 | 1 38 51 ·93 | 14 4 44 ·8 | 158 ·52 |
| 18 | 1 41 11 ·74 | 14 20 35 ·9 | 157 ·65 |
| 19 | 1 43 31 ·86 | 14 36 21 ·8 | 156 ·73 |
| 20 | 1 45 52 ·27 | 14 52 2 ·2 | 155 ·80 |
| 21 | 1 48 12 ·99 | 15 7 37 ·0 | 154 ·87 |
| 22 | 1 50 34 ·03 | 15 23 6 ·2 | 153 ·88 |
| 23 | 1 52 55 ·37 | 15 38 29 ·5 | 152 ·90 |
| 24 | 1 55 17 ·03 | N. 15 53 46 ·9 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *WEDNESDAY* 25. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 1 55 17 ·03 | N.15 53 46 ·9 | 151 ·88 |
| 1 | 1 57 39 ·01 | 16 8 58 ·2 | 150 ·87 |
| 2 | 2 0 1 ·30 | 16 24 3 ·4 | 149 ·80 |
| 3 | 2 2 23 ·92 | 16 39 2 ·2 | 148 ·73 |
| 4 | 2 4 46 ·86 | 16 53 54 ·6 | 147 ·65 |
| 5 | 2 7 10 ·13 | 17 8 40 ·5 | 146 ·55 |
| 6 | 2 9 33 ·72 | 17 23 19 ·8 | 145 ·40 |
| 7 | 2 11 57 ·64 | 17 37 52 ·2 | 144 ·27 |
| 8 | 2 14 21 ·89 | 17 52 17 ·8 | 143 ·10 |
| 9 | 2 16 46 ·46 | 18 6 36 ·4 | 141 ·92 |
| 10 | 2 19 11 ·37 | 18 20 47 ·9 | 140 ·70 |
| 11 | 2 21 36 ·61 | 18 34 52 ·1 | 139 ·48 |
| 12 | 2 24 2 ·18 | 18 48 49 ·0 | 138 ·25 |
| 13 | 2 26 28 ·09 | 19 2 38 ·5 | 136 ·97 |
| 14 | 2 28 54 ·33 | 19 16 20 ·3 | 135 ·70 |
| 15 | 2 31 20 ·90 | 19 29 54 ·5 | 134 ·40 |
| 16 | 2 33 47 ·81 | 19 43 20 ·9 | 133 ·07 |
| 17 | 2 36 15 ·05 | 19 56 39 ·3 | 131 ·73 |
| 18 | 2 38 42 ·62 | 20 9 49 ·7 | 130 ·38 |
| 19 | 2 41 10 ·53 | 20 22 52 ·0 | 129 ·00 |
| 20 | 2 43 38 ·76 | 20 35 46 ·0 | 127 ·62 |
| 21 | 2 46 7 ·33 | 20 48 31 ·7 | 126 ·20 |
| 22 | 2 48 36 ·23 | 21 1 8 ·9 | 124 ·77 |
| 23 | 2 51 5 ·46 | N.21 13 37 ·5 | 123 ·32 |
| | *THURSDAY* 26. | | |
| 0 | 2 53 35 ·01 | N.21 25 57 ·4 | 121 ·85 |
| 1 | 2 56 4 ·89 | 21 38 8 ·5 | 120 ·37 |
| 2 | 2 58 35 ·10 | 21 50 10 ·7 | 118 ·87 |
| 3 | 3 1 5 ·62 | 22 2 3 ·9 | 117 ·35 |
| 4 | 3 3 36 ·46 | 22 13 48 ·0 | 115 ·83 |
| 5 | 3 6 7 ·63 | 22 25 23 ·0 | 114 ·27 |
| 6 | 3 8 39 ·10 | 22 36 48 ·6 | 112 ·72 |
| 7 | 3 11 10 ·89 | 22 48 4 ·9 | 111 ·12 |
| 8 | 3 13 42 ·99 | 22 59 11 ·6 | 109 ·55 |
| 9 | 3 16 15 ·39 | 23 10 8 ·9 | 107 ·92 |
| 10 | 3 18 48 ·09 | 23 20 56 ·4 | 106 ·30 |
| 11 | 3 21 21 ·09 | 23 31 34 ·2 | 104 ·67 |
| 12 | 3 23 54 ·39 | 23 42 2 ·2 | 103 ·02 |
| 13 | 3 26 27 ·98 | 23 52 20 ·3 | 101 ·35 |
| 14 | 3 29 1 ·86 | 24 2 28 ·4 | 99 ·65 |
| 15 | 3 31 36 ·02 | 24 12 26 ·3 | 97 ·97 |
| 16 | 3 34 10 ·46 | 24 22 14 ·1 | 96 ·25 |
| 17 | 3 36 45 ·17 | 24 31 51 ·6 | 94 ·53 |
| 18 | 3 39 20 ·14 | 24 41 18 ·8 | 92 ·80 |
| 19 | 3 41 55 ·38 | 24 50 35 ·6 | 91 ·05 |
| 20 | 3 44 30 ·87 | 24 59 41 ·9 | 89 ·27 |
| 21 | 3 47 6 ·62 | 25 8 37 ·5 | 87 ·52 |
| 22 | 3 49 42 ·61 | 25 17 22 ·6 | 85 ·72 |
| 23 | 3 52 18 ·84 | 25 25 56 ·9 | 83 ·93 |
| 24 | 3 54 55 ·30 | N.25 34 20 ·5 | |

| Hour. | Right Ascension. | Declination. |
|---|---|---|
| | *FRIDAY* 27. | |
| | h m s | ° ′ ″ |
| 0 | 3 54 55 ·30 | N.25 34 20 |
| 1 | 3 57 31 ·99 | 25 42 33 |
| 2 | 4 0 8 ·90 | 25 50 34 |
| 3 | 4 2 46 ·02 | 25 58 25 |
| 4 | 4 5 23 ·35 | 26 6 5 |
| 5 | 4 8 0 ·88 | 26 13 34 |
| 6 | 4 10 38 ·60 | 26 20 51 |
| 7 | 4 13 16 ·51 | 26 27 58 |
| 8 | 4 15 54 ·59 | 26 34 53 |
| 9 | 4 18 32 ·84 | 26 41 36 |
| 10 | 4 21 11 ·26 | 26 48 9 |
| 11 | 4 23 49 ·82 | 26 54 30 |
| 12 | 4 26 28 ·53 | 27 0 39 |
| 13 | 4 29 7 ·38 | 27 6 37 |
| 14 | 4 31 46 ·36 | 27 12 24 |
| 15 | 4 34 25 ·46 | 27 17 59 |
| 16 | 4 37 4 ·67 | 27 23 23 |
| 17 | 4 39 43 ·97 | 27 28 35 |
| 18 | 4 42 23 ·38 | 27 33 35 |
| 19 | 4 45 2 ·86 | 27 38 23 |
| 20 | 4 47 42 ·42 | 27 43 0 |
| 21 | 4 50 22 ·04 | 27 47 26 |
| 22 | 4 53 1 ·71 | 27 51 39 |
| 23 | 4 55 41 ·43 | N.27 55 41 |
| | *SATURDAY* 28. | |
| 0 | 4 58 21 ·19 | N.27 59 31 |
| 1 | 5 1 0 ·97 | 28 3 9 |
| 2 | 5 3 40 ·76 | 28 6 35 |
| 3 | 5 6 20 ·56 | 28 9 50 |
| 4 | 5 9 0 ·35 | 28 12 53 |
| 5 | 5 11 40 ·13 | 28 15 44 |
| 6 | 5 14 19 ·89 | 28 18 23 |
| 7 | 5 16 59 ·61 | 28 20 51 |
| 8 | 5 19 39 ·29 | 28 23 6 |
| 9 | 5 22 18 ·91 | 28 25 10 |
| 10 | 5 24 58 ·48 | 28 27 3 |
| 11 | 5 27 37 ·96 | 28 28 43 |
| 12 | 5 30 17 ·37 | 28 30 12 |
| 13 | 5 32 56 ·69 | 28 31 29 |
| 14 | 5 35 35 ·90 | 28 32 34 |
| 15 | 5 38 14 ·99 | 28 33 28 |
| 16 | 5 40 53 ·97 | 28 34 10 |
| 17 | 5 43 32 ·81 | 28 34 41 |
| 18 | 5 46 11 ·51 | 28 35 0 |
| 19 | 5 48 50 ·05 | 28 35 7 |
| 20 | 5 51 28 ·43 | 28 35 3 |
| 21 | 5 54 6 ·65 | 28 34 47 |
| 22 | 5 56 44 ·68 | 28 34 20 |
| 23 | 5 59 22 ·52 | 28 33 42 |
| 24 | 6 2 0 ·16 | N.28 32 52 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. | Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|---|---|---|---|
| | *SUNDAY* 29. | | | | *MONDAY* 30. | | |
| | h m s | ° ′ ″ | ″ | | h m s | ° ′ ″ | ″ |
| 6 | 2 0 ·16 | N.28 32 52 ·2 | 10 ·20 | 0 | 7 3 42 ·00 | N.27 18 33 ·8 | 52 ·42 |
| 6 | 4 37 ·59 | 28 31 51 ·0 | 12 ·07 | 1 | 7 6 12 ·05 | 27 13 19 ·3 | 54 ·03 |
| 6 | 7 14 ·80 | 28 30 38 ·6 | 13 ·93 | 2 | 7 8 41 ·71 | 27 7 55 ·1 | 55 ·63 |
| 6 | 9 51 ·79 | 28 29 15 ·0 | 15 ·80 | 3 | 7 11 10 ·98 | 27 2 21 ·3 | 57 ·20 |
| 6 | 12 28 ·54 | 28 27 40 ·2 | 17 ·67 | 4 | 7 13 39 ·85 | 26 56 38 ·1 | 58 ·77 |
| 6 | 15 5 ·04 | 28 25 54 ·2 | 19 ·48 | 5 | 7 16 8 ·33 | 26 50 45 ·5 | 60 ·32 |
| 6 | 17 41 ·30 | 28 23 57 ·3 | 21 ·33 | 6 | 7 18 36 ·39 | 26 44 43 ·6 | 61 ·87 |
| 6 | 20 17 ·29 | 28 21 49 ·3 | 23 ·15 | 7 | 7 21 4 ·05 | 26 38 32 ·4 | 63 ·38 |
| 6 | 22 53 ·02 | 28 19 30 ·4 | 24 ·97 | 8 | 7 23 31 ·30 | 26 32 12 ·1 | 64 ·88 |
| 6 | 25 28 ·47 | 28 17 0 ·6 | 26 ·77 | 9 | 7 25 58 ·12 | 26 25 42 ·8 | 66 ·38 |
| 6 | 28 3 ·63 | 28 14 20 ·0 | 28 ·55 | 10 | 7 28 24 ·53 | 26 19 4 ·5 | 67 ·87 |
| 6 | 30 38 ·50 | 28 11 28 ·7 | 30 ·35 | 11 | 7 30 50 ·51 | 26 12 17 ·3 | 69 ·32 |
| 6 | 33 13 ·07 | 28 8 26 ·6 | 32 ·12 | 12 | 7 33 16 ·07 | 26 5 21 ·4 | 70 ·77 |
| 6 | 35 47 ·34 | 28 5 13 ·9 | 33 ·87 | 13 | 7 35 41 ·20 | 25 58 16 ·8 | 72 ·20 |
| 6 | 38 21 ·29 | 28 1 50 ·7 | 35 ·62 | 14 | 7 38 5 ·89 | 25 51 3 ·6 | 73 ·62 |
| 6 | 40 54 ·92 | 27 58 17 ·0 | 37 ·35 | 15 | 7 40 30 ·16 | 25 43 41 ·9 | 75 ·03 |
| 6 | 43 28 ·21 | 27 54 32 ·9 | 39 ·07 | 16 | 7 42 53 ·98 | 25 36 11 ·7 | 76 ·40 |
| 6 | 46 1 ·17 | 27 50 38 ·5 | 40 ·80 | 17 | 7 45 17 ·37 | 25 28 33 ·3 | 77 ·78 |
| 6 | 48 33 ·79 | 27 46 33 ·7 | 42 ·48 | 18 | 7 47 40 ·31 | 25 20 46 ·6 | 79 ·15 |
| 6 | 51 6 ·07 | 27 42 18 ·8 | 44 ·18 | 19 | 7 50 2 ·82 | 25 12 51 ·7 | 80 ·48 |
| 6 | 53 37 ·99 | 27 37 53 ·7 | 45 ·85 | 20 | 7 52 24 ·88 | 25 4 48 ·8 | 81 ·62 |
| 6 | 56 9 ·55 | 27 33 18 ·6 | 47 ·50 | 21 | 7 54 46 ·49 | 24 56 37 ·9 | 83 ·13 |
| 6 | 58 40 ·74 | 27 28 33 ·6 | 49 ·17 | 22 | 7 57 7 ·66 | 24 48 19 ·1 | 84 ·42 |
| 7 | 1 11 ·56 | 27 23 38 ·6 | 50 ·80 | 23 | 7 59 28 ·38 | 24 39 52 ·6 | 85 ·72 |
| 7 | 3 42 ·00 | N.27 18 33 ·8 | | 24 | 8 1 48 ·65 | N.24 31 18 ·3 | |

### PHASES OF THE MOON.

| | d h m |
|---|---|
| ● New Moon | 7 10 21 ·1 |
| ☽ *First Quarter* | 15 13 59 ·5 |
| ○ Full Moon | 22 19 9 ·8 |
| ☾ *Last Quarter* | 29 9 43 ·6 |

| | d h |
|---|---|
| ☾ Apogee | 12 8 |
| ☾ Perigee | 24 10 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P. L. of diff. | III$^h$. | P. L. of diff. | VI$^h$. | P. L. of diff. | IX$^h$. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ |
| 1 | α Pegasi | W. | 86 54 56 | 2631 | 88 33 9 | 2639 | 90 11 11 | 2646 | 91 49 |
| | α Arietis | W. | 44 14 15 | 2438 | 45 56 56 | 2443 | 47 39 29 | 2450 | 49 21 |
| | Aldebaran | W. | 16 18 35 | 3520 | 17 38 37 | 3331 | 19 2 13 | 3130 | 20 28 |
| | Pollux | E. | 31 1 14 | 2405 | 29 17 47 | 2415 | 27 34 34 | 2426 | 25 51 |
| | Sun | E. | 78 31 56 | 2705 | 76 55 23 | 2714 | 75 19 1 | 2723 | 73 42 |
| 2 | α Arietis | W. | 57 51 36 | 2490 | 59 33 3 | 2497 | 61 14 20 | 2505 | 62 55 |
| | Aldebaran | W. | 28 5 27 | 2806 | 29 39 47 | 2780 | 31 14 41 | 2760 | 32 50 |
| | Sun | E. | 65 45 6 | 2777 | 64 10 8 | 2787 | 62 35 23 | 2795 | 61 0 |
| 3 | α Arietis | W. | 71 18 16 | 2552 | 72 58 17 | 2560 | 74 38 7 | 2568 | 76 17 |
| | Aldebaran | W. | 40 50 54 | 2702 | 42 27 31 | 2701 | 44 4 10 | 2699 | 45 40 |
| | Sun | E. | 53 11 1 | 2851 | 51 37 39 | 2859 | 50 4 28 | 2869 | 48 31 |
| 4 | α Arietis | W. | 84 33 12 | 2618 | 86 11 43 | 2627 | 87 50 2 | 2635 | 89 28 |
| | Aldebaran | W. | 53 43 58 | 2710 | 55 20 25 | 2714 | 56 56 46 | 2719 | 58 33 |
| | Pollux | W. | 9 56 29 | 2702 | 11 33 6 | 2684 | 13 10 8 | 2675 | 14 47 |
| | Sun | E. | 40 49 32 | 2924 | 39 17 44 | 2934 | 37 46 8 | 2943 | 36 14 |
| 5 | Aldebaran | W. | 66 32 29 | 2753 | 68 7 58 | 2760 | 69 43 19 | 2766 | 71 18 |
| | Pollux | W. | 22 53 35 | 2686 | 24 30 34 | 2693 | 26 7 24 | 2699 | 27 44 |
| 9 | Saturn | E. | 60 45 37 | 3003 | 59 15 28 | 3013 | 57 45 31 | 3022 | 56 15 |
| | Antares | E. | 63 37 43 | 2945 | 62 6 21 | 2952 | 60 35 8 | 2960 | 59 4 |
| 10 | Sun | W. | 28 58 42 | 3368 | 30 21 35 | 3375 | 31 44 20 | 3382 | 33 6 |
| | Saturn | E. | 48 49 50 | 3078 | 47 21 13 | 3087 | 45 52 48 | 3096 | 44 24 |
| | Antares | E. | 51 31 10 | 3004 | 50 1 2 | 3010 | 48 31 2 | 3016 | 47 1 |
| | α Aquilæ | E. | 103 8 22 | 3816 | 101 53 36 | 3814 | 100 38 48 | 3812 | 99 23 |
| 11 | Sun | W. | 39 58 14 | 3417 | 41 20 11 | 3423 | 42 42 1 | 3427 | 44 3 |
| | Saturn | E. | 37 6 23 | 3157 | 35 39 22 | 3168 | 34 12 34 | 3180 | 32 46 |
| | Antares | E. | 39 33 34 | 3049 | 38 4 22 | 3054 | 36 35 16 | 3058 | 35 6 |
| | α Aquilæ | E. | 93 9 51 | 3819 | 91 55 8 | 3821 | 90 40 27 | 3824 | 89 25 |
| 12 | Sun | W. | 50 51 31 | 3447 | 52 12 54 | 3449 | 53 34 15 | 3451 | 54 55 |
| | Jupiter | W. | 19 58 37 | 3238 | 21 24 1 | 3230 | 22 49 35 | 3222 | 24 15 |
| | Venus | W. | 19 57 21 | 3188 | 21 23 45 | 3181 | 22 50 18 | 3173 | 24 17 |
| | Saturn | E. | 25 37 25 | 3275 | 24 12 44 | 3299 | 22 48 31 | 3326 | 21 24 |
| | Antares | E. | 27 42 15 | 3077 | 26 13 37 | 3079 | 24 45 2 | 3080 | 23 16 |
| | α Aquilæ | E. | 83 14 1 | 3858 | 81 59 59 | 3865 | 80 46 4 | 3873 | 79 32 |
| 13 | Sun | W. | 61 42 0 | 3451 | 63 3 19 | 3449 | 64 24 40 | 3447 | 65 46 |
| | Venus | W. | 31 32 23 | 3137 | 32 59 48 | 3132 | 34 27 19 | 3126 | 35 54 |
| | Jupiter | W. | 31 25 30 | 3192 | 32 51 49 | 3188 | 34 18 13 | 3183 | 35 44 |
| | α Aquilæ | E. | 73 25 50 | 3935 | 72 13 6 | 3948 | 71 0 35 | 3962 | 69 48 |
| | Fomalhaut | E. | 97 34 11 | 3345 | 96 10 52 | 3343 | 94 47 30 | 3339 | 93 24 |
| 14 | Sun | W. | 72 33 51 | 3424 | 73 55 40 | 3420 | 75 17 34 | 3414 | 76 39 |
| | Venus | W. | 43 15 0 | 3087 | 44 43 26 | 3078 | 46 12 2 | 3071 | 47 40 |
| | Jupiter | W. | 42 58 37 | 3152 | 44 25 44 | 3146 | 45 52 58 | 3138 | 47 20 |
| | Mars | W. | 16 35 52 | 3418 | 17 57 48 | 3398 | 19 20 7 | 3380 | 20 42 |
| | Fomalhaut | E. | 86 25 57 | 3319 | 85 2 7 | 3315 | 83 38 13 | 3311 | 82 14 |
| | α Pegasi | E. | 108 29 32 | 3322 | 107 5 46 | 3311 | 105 41 47 | 3301 | 104 17 |
| | *Sun* | W. | 83 31 43 | 3367 | 84 54 37 | 3358 | 86 17 42 | 3347 | 87 40 |

## MEAN TIME.

### LUNAR DISTANCES.

| tar's Name and Position. | | Midnight. | P. L. of diff. | XV h. | P. L. of diff. | XVIII h. | P. L. of diff. | XXI h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 'egasi | W. | 93 26 43 | 2665 | 95 4 10 | 2675 | 96 41 24 | 2685 | 98 18 24 | 2696 |
| rietis | W. | 51 4 9 | 2462 | 52 46 15 | 2469 | 54 28 12 | 2476 | 56 9 59 | 2483 |
| lebaran | W. | 21 57 7 | 2997 | 23 27 24 | 2931 | 24 59 4 | 2880 | 26 31 49 | 2838 |
| llux | E. | 24 8 54 | 2448 | 22 26 27 | 2460 | 20 44 18 | 2473 | 19 2 26 | 2487 |
| N | E. | 72 6 55 | 2741 | 70 31 10 | 2750 | 68 55 36 | 2759 | 67 20 15 | 2769 |
| rietis | W. | 64 36 21 | 2520 | 66 17 6 | 2528 | 67 57 40 | 2536 | 69 38 3 | 2543 |
| lebaran | W. | 34 25 45 | 2730 | 36 1 45 | 2720 | 37 37 59 | 2712 | 39 14 23 | 2707 |
| N | E. | 59 26 28 | 2814 | 57 52 18 | 2824 | 56 18 21 | 2832 | 54 44 35 | 2841 |
| rietis | W. | 77 57 14 | 2585 | 79 36 30 | 2592 | 81 15 36 | 2601 | 82 54 29 | 2609 |
| lebaran | W. | 47 17 33 | 2700 | 48 54 13 | 2701 | 50 30 52 | 2704 | 52 7 27 | 2707 |
| N | E. | 46 58 43 | 2887 | 45 26 7 | 2897 | 43 53 44 | 2905 | 42 21 32 | 2915 |
| rietis | W. | 91 6 7 | 2652 | 92 43 51 | 2661 | 94 21 24 | 2669 | 95 58 45 | 2678 |
| lebaran | W. | 60 9 9 | 2729 | 61 45 11 | 2735 | 63 21 5 | 2741 | 64 56 51 | 2747 |
| llux | W. | 16 24 40 | 2670 | 18 2 0 | 2673 | 19 39 16 | 2675 | 21 16 29 | 2680 |
| N | E. | 34 43 30 | 2961 | 33 12 29 | 2971 | 31 41 40 | 2980 | 30 11 2 | 2989 |
| lebaran | W. | 72 53 33 | 2782 | 74 28 25 | 2789 | 76 3 8 | 2797 | 77 37 40 | 2805 |
| llux | W. | 29 20 38 | 2713 | 30 57 1 | 2720 | 32 33 14 | 2728 | 34 9 16 | 2736 |
| turn | E. | 54 46 11 | 3041 | 53 16 49 | 3050 | 51 47 38 | 3059 | 50 18 38 | 3069 |
| tares | E. | 57 33 12 | 2975 | 56 2 28 | 2982 | 54 31 53 | 2989 | 53 1 27 | 2997 |
| N | W. | 34 29 26 | 3395 | 35 51 48 | 3401 | 37 14 3 | 3407 | 38 36 12 | 3413 |
| turn | E. | 42 56 32 | 3115 | 41 28 41 | 3126 | 40 1 3 | 3136 | 38 33 37 | 3146 |
| tares | E. | 45 31 24 | 3028 | 44 1 46 | 3034 | 42 32 16 | 3039 | 41 2 52 | 3044 |
| quilæ | E. | 98 9 7 | 3812 | 96 54 17 | 3812 | 95 39 27 | 3813 | 94 24 38 | 3815 |
| N | W. | 45 25 28 | 3436 | 46 47 4 | 3439 | 48 8 36 | 3442 | 49 30 5 | 3445 |
| turn | E. | 31 19 43 | 3206 | 29 53 41 | 3220 | 28 27 56 | 3236 | 27 2 30 | 3254 |
| tares | E. | 33 37 19 | 3066 | 32 8 28 | 3069 | 30 39 40 | 3072 | 29 10 56 | 3074 |
| quilæ | E. | 88 11 17 | 3833 | 86 56 49 | 3839 | 85 42 27 | 3845 | 84 28 11 | 3851 |
| N | W. | 56 16 52 | 3453 | 57 38 9 | 3453 | 58 59 26 | 3453 | 60 20 43 | 3453 |
| piter | W. | 25 41 8 | 3210 | 27 7 5 | 3205 | 28 33 8 | 3201 | 29 59 16 | 3196 |
| nus | W. | 25 43 51 | 3159 | 27 10 49 | 3153 | 28 37 54 | 3148 | 30 5 5 | 3143 |
| turn | E. | 20 1 47 | 3398 | 18 39 28 | 3448 | 17 18 6 | 3511 | 15 57 54 | 3590 |
| tares | E. | 21 47 56 | 3083 | 20 19 25 | 3083 | 18 50 55 | 3083 | 17 22 25 | 3083 |
| quilæ | E. | 78 18 40 | 3892 | 77 5 12 | 3902 | 75 51 54 | 3912 | 74 38 46 | 3924 |
| N | W. | 67 7 29 | 3442 | 68 28 58 | 3439 | 69 50 31 | 3434 | 71 12 9 | 3430 |
| nus | W. | 37 22 42 | 3114 | 38 50 35 | 3108 | 40 18 35 | 3101 | 41 46 43 | 3094 |
| piter | W. | 37 11 17 | 3173 | 38 37 58 | 3169 | 40 4 44 | 3163 | 41 31 37 | 3157 |
| quilæ | E. | 68 36 15 | 3992 | 67 24 28 | 4010 | 66 12 58 | 4029 | 65 1 47 | 4047 |
| malhaut | E. | 92 0 34 | 3333 | 90 37 1 | 3330 | 89 13 24 | 3326 | 87 49 42 | 3323 |
| N | W. | 78 1 44 | 3400 | 79 24 0 | 3393 | 80 46 25 | 3385 | 82 8 59 | 3376 |
| nus | W. | 49 9 42 | 3053 | 50 38 49 | 3044 | 52 8 7 | 3035 | 53 37 37 | 3025 |
| piter | W. | 48 47 52 | 3125 | 50 15 31 | 3117 | 51 43 20 | 3109 | 53 11 19 | 3100 |
| rs | W. | 22 5 43 | 3349 | 23 28 58 | 3335 | 24 52 29 | 3322 | 26 16 15 | 3309 |
| malhaut | E. | 80 50 10 | 3303 | 79 26 2 | 3298 | 78 1 48 | 3294 | 76 37 29 | 3290 |
| Pegasi | E. | 102 53 15 | 3282 | 101 28 43 | 3272 | 100 3 59 | 3263 | 98 39 4 | 3253 |
| N | W. | | | | 9 3314 | 91 52 4 | 3303 | 93 16 12 | 3290 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III h. | P.L. of diff. | VI h. | P.L. of diff. | IX h. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ |
| 15 | Venus | W. | 55 7 19 | 3014 | 56 37 14 | 3003 | 58 7 23 | 2992 | 59 37 |
| | Jupiter | W. | 54 39 29 | 3091 | 56 7 50 | 3082 | 57 36 22 | 3072 | 59 5 |
| | Mars | W. | 27 40 16 | 3296 | 29 4 33 | 3283 | 30 29 4 | 3271 | 31 53 |
| | Fomalhaut | E. | 75 13 6 | 3285 | 73 48 37 | 3281 | 72 24 3 | 3277 | 70 59 |
| | α Pegasi | E. | 97 13 58 | 3243 | 95 48 40 | 3233 | 94 23 10 | 3222 | 92 57 |
| 16 | Sun | W. | 94 40 35 | 3277 | 96 5 13 | 3264 | 97 30 7 | 3251 | 98 55 |
| | Venus | W. | 67 13 31 | 2916 | 68 45 30 | 2901 | 70 17 47 | 2887 | 71 50 |
| | Jupiter | W. | 66 32 7 | 3004 | 68 2 15 | 2991 | 69 32 39 | 2978 | 71 3 |
| | Mars | W. | 39 1 32 | 3190 | 40 27 53 | 3176 | 41 54 31 | 3162 | 43 21 |
| | Saturn | W. | 23 39 25 | 3126 | 25 7 3 | 3095 | 26 35 19 | 3065 | 28 4 |
| | Antares | W. | 20 1 6 | 2920 | 21 32 59 | 2908 | 23 5 8 | 2895 | 24 37 |
| | Fomalhaut | E. | 63 54 57 | 3253 | 62 29 51 | 3250 | 61 4 41 | 3248 | 59 39 |
| | α Pegasi | E. | 85 45 49 | 3159 | 84 18 51 | 3148 | 82 51 39 | 3137 | 81 24 |
| 17 | Sun | W. | 106 5 27 | 3159 | 107 32 25 | 3142 | 108 59 44 | 3126 | 110 27 |
| | Venus | W. | 79 38 16 | 2792 | 81 12 54 | 2776 | 82 47 53 | 2759 | 84 23 |
| | Jupiter | W. | 78 41 6 | 2892 | 80 13 35 | 2876 | 81 46 25 | 2860 | 83 19 |
| | Mars | W. | 50 40 41 | 3067 | 52 9 31 | 3051 | 53 38 40 | 3034 | 55 8 |
| | Saturn | W. | 35 36 33 | 2919 | 37 8 28 | 2897 | 38 40 51 | 2876 | 40 13 |
| | Antares | W. | 32 24 7 | 2810 | 33 58 22 | 2795 | 35 32 57 | 2779 | 37 7 |
| | Fomalhaut | E. | 52 33 16 | 3251 | 51 8 7 | 3256 | 49 43 4 | 3262 | 48 18 |
| | α Pegasi | E. | 74 3 47 | 3070 | 72 35 1 | 3060 | 71 6 2 | 3049 | 69 36 |
| 18 | Sun | W. | 117 50 56 | 3018 | 119 20 46 | 3000 | 120 50 59 | 2981 | 122 21 |
| | Venus | W. | 92 25 57 | 2651 | 94 3 43 | 2632 | 95 41 54 | 2613 | 97 20 |
| | Jupiter | W. | 91 10 48 | 2759 | 92 46 10 | 2741 | 94 21 55 | 2724 | 95 58 |
| | Mars | W. | 62 41 14 | 2927 | 64 12 59 | 2909 | 65 45 7 | 2889 | 67 17 |
| | Saturn | W. | 48 4 25 | 2754 | 49 39 53 | 2734 | 51 15 48 | 2714 | 52 52 |
| | Antares | W. | 45 7 57 | 2679 | 46 45 5 | 2662 | 48 22 36 | 2643 | 50 0 |
| | Fomalhaut | E. | 41 17 6 | 3359 | 39 54 3 | 3390 | 38 31 35 | 3427 | 37 9 |
| | α Pegasi | E. | 62 7 49 | 2993 | 60 37 28 | 2987 | 59 6 59 | 2981 | 57 36 |
| 19 | Sun | W. | 130 0 44 | 2865 | 131 33 48 | 2845 | 133 7 17 | 2826 | 134 41 |
| | Venus | W. | 105 40 4 | 2500 | 107 21 18 | 2480 | 109 2 59 | 2461 | 110 45 |
| | Jupiter | W. | 104 4 47 | 2615 | 105 43 22 | 2597 | 107 22 21 | 2579 | 109 1 |
| | Mars | W. | 75 6 29 | 2775 | 76 41 30 | 2756 | 78 16 56 | 2737 | 79 52 |
| | Saturn | W. | 61 0 32 | 2596 | 62 39 32 | 2577 | 64 18 59 | 2557 | 65 58 |
| | Antares | W. | 58 16 15 | 2536 | 59 56 38 | 2517 | 61 37 27 | 2499 | 63 18 |
| | α Pegasi | E. | 50 2 9 | 2970 | 48 31 19 | 2975 | 47 0 35 | 2983 | 45 30 |
| | α Arietis | E. | 90 5 2 | 2559 | 88 25 10 | 2541 | 86 44 54 | 2522 | 85 4 |
| 20 | Mars | W. | 87 58 25 | 2624 | 89 36 48 | 2605 | 91 15 36 | 2587 | 92 54 |
| | Saturn | W. | 74 24 57 | 2445 | 76 7 27 | 2427 | 77 50 23 | 2409 | 79 33 |
| | Antares | W. | 71 51 13 | 2392 | 73 35 0 | 2375 | 75 19 11 | 2357 | 77 3 |
| | α Pegasi | E. | 38 2 15 | 3116 | 36 34 25 | 3161 | 35 7 29 | 3215 | 33 41 |
| | α Arietis | E. | 76 34 27 | 2416 | 74 51 15 | 2399 | 73 7 39 | 2382 | 71 23 |
| 21 | Mars | W. | 101 16 53 | 2485 | 102 58 27 | 2470 | 104 40 23 | 2455 | 106 22 |
| | Saturn | W. | 88 16 38 | 2310 | 90 2 23 | 2295 | 91 48 30 | 2281 | 93 34 |
| | Antares | W. | 85 52 54 | 2260 | 87 39 53 | 2244 | 89 27 15 | 2230 | 91 14 |
| | α Arietis | E. | 62 37 53 | 2289 | 60 51 37 | 2276 | 59 5 2 | 2262 | 57 18 |
| | Aldebaran | E. | 93 56 28 | 2335 | 92 11 20 | 2320 | 90 25 50 | 2305 | 88 39 |

## MEAN TIME.

### LUNAR DISTANCES.

| Date | Star's Name and Position. | | Midnight. | P.L. of diff. | XV$^h$. | P.L. of diff. | XVIII$^h$. | P.L. of diff. | XXI$^h$. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 5 | Venus | W. | 61 8 23 | 2968 | 62 39 16 | 2955 | 64 10 25 | 2943 | 65 41 50 | 2930 |
| | Jupiter | W. | 60 34 3 | 3051 | 62 3 13 | 3040 | 63 32 36 | 3028 | 65 2 14 | 3016 |
| | Mars | W. | 33 18 51 | 3244 | 34 44 8 | 3231 | 36 9 40 | 3218 | 37 35 28 | 3204 |
| | Fomalhaut | E. | 69 34 40 | 3268 | 68 9 51 | 3264 | 66 44 57 | 3260 | 65 19 59 | 3257 |
| | α Pegasi | E. | 91 31 33 | 3202 | 90 5 26 | 3192 | 88 39 7 | 3180 | 87 12 34 | 3170 |
| 6 | Sun | W. | 100 20 43 | 3221 | 101 46 27 | 3207 | 103 12 28 | 3191 | 104 38 48 | 3175 |
| | Venus | W. | 73 23 17 | 2857 | 74 56 31 | 2842 | 76 30 5 | 2825 | 78 4 0 | 2809 |
| | Jupiter | W. | 72 34 16 | 2950 | 74 5 31 | 2936 | 75 37 4 | 2922 | 77 8 55 | 2906 |
| | Mars | W. | 44 48 39 | 3131 | 46 16 11 | 3115 | 47 44 2 | 3100 | 49 12 12 | 3084 |
| | Saturn | W. | 29 33 39 | 3011 | 31 3 38 | 2987 | 32 34 7 | 2963 | 34 5 6 | 2941 |
| | Antares | W. | 26 10 16 | 2868 | 27 43 16 | 2854 | 29 16 34 | 2839 | 30 50 11 | 2825 |
| | Fomalhaut | E. | 58 14 15 | 3245 | 56 48 59 | 3245 | 55 23 43 | 3246 | 53 58 28 | 3248 |
| | α Pegasi | E. | 79 56 36 | 3115 | 78 28 44 | 3103 | 77 0 38 | 3092 | 75 32 19 | 3082 |
| 7 | Sun | W. | 111 55 22 | 3091 | 113 23 42 | 3073 | 114 52 25 | 3056 | 116 21 29 | 3037 |
| | Venus | W. | 85 59 0 | 2723 | 87 35 9 | 2706 | 89 11 41 | 2688 | 90 48 37 | 2670 |
| | Jupiter | W. | 84 53 7 | 2828 | 86 26 59 | 2811 | 88 1 13 | 2793 | 89 35 50 | 2777 |
| | Mars | W. | 56 38 4 | 2999 | 58 8 18 | 2981 | 59 38 54 | 2963 | 61 9 53 | 2946 |
| | Saturn | W. | 41 46 56 | 2835 | 43 20 39 | 2815 | 44 54 48 | 2795 | 46 29 23 | 2774 |
| | Antares | W. | 38 43 10 | 2746 | 40 18 49 | 2730 | 41 54 49 | 2714 | 43 31 11 | 2696 |
| | Fomalhaut | E. | 46 53 23 | 3282 | 45 28 50 | 3296 | 44 4 34 | 3313 | 42 40 38 | 3334 |
| | α Pegasi | E. | 68 7 25 | 3029 | 66 37 48 | 3020 | 65 8 0 | 3010 | 63 38 0 | 3001 |
| 8 | Sun | W. | 123 52 37 | 2943 | 125 24 2 | 2924 | 126 55 51 | 2904 | 128 28 5 | 2884 |
| | Venus | W. | 98 59 33 | 2576 | 100 39 1 | 2556 | 102 18 56 | 2538 | 103 59 17 | 2519 |
| | Jupiter | W. | 97 34 36 | 2688 | 99 11 32 | 2670 | 100 48 52 | 2652 | 102 26 37 | 2633 |
| | Mars | W. | 68 50 36 | 2852 | 70 23 57 | 2832 | 71 57 43 | 2813 | 73 31 54 | 2795 |
| | Saturn | W. | 54 28 56 | 2675 | 56 6 10 | 2655 | 57 43 50 | 2635 | 59 21 58 | 2615 |
| | Antares | W. | 51 38 52 | 2609 | 53 17 35 | 2591 | 54 56 43 | 2572 | 56 36 17 | 2554 |
| | Fomalhaut | E. | 35 48 52 | 3523 | 34 28 53 | 3586 | 33 10 3 | 3662 | 31 52 35 | 3750 |
| | α Pegasi | E. | 56 5 38 | 2971 | 54 34 49 | 2968 | 53 3 56 | 2967 | 51 33 2 | 2968 |
| 9 | Sun | W. | 136 15 31 | 2788 | 137 50 15 | 2768 | 139 25 25 | 2749 | 141 0 59 | 2730 |
| | Venus | W. | 112 27 41 | 2424 | 114 10 42 | 2405 | 115 54 9 | 2387 | 117 38 3 | 2369 |
| | Jupiter | W. | 110 41 35 | 2543 | 112 21 49 | 2525 | 114 2 28 | 2507 | 115 43 32 | 2490 |
| | Mars | W. | 81 29 4 | 2698 | 83 5 46 | 2679 | 84 42 54 | 2661 | 86 20 27 | 2642 |
| | Saturn | W. | 67 39 13 | 2519 | 69 20 0 | 2500 | 71 1 13 | 2482 | 72 42 52 | 2463 |
| | Antares | W. | 65 0 20 | 2463 | 66 42 25 | 2445 | 68 24 56 | 2427 | 70 7 52 | 2410 |
| | α Pegasi | E. | 43 59 41 | 3008 | 42 29 38 | 3027 | 40 59 59 | 3051 | 39 30 49 | 3080 |
| | α Arietis | E. | 83 23 5 | 2487 | 81 41 33 | 2469 | 79 59 36 | 2451 | 78 17 14 | 2433 |
| 10 | Mars | W. | 94 34 26 | 2551 | 96 14 28 | 2535 | 97 54 53 | 2517 | 99 35 42 | 2501 |
| | Saturn | W. | 81 17 32 | 2375 | 83 1 43 | 2358 | 84 46 18 | 2342 | 86 31 16 | 2326 |
| | Antares | W. | 78 48 49 | 2323 | 80 34 15 | 2307 | 82 20 4 | 2291 | 84 6 17 | 2275 |
| | α Pegasi | E. | 32 17 4 | 3361 | 30 54 3 | 3459 | 29 32 53 | 3577 | 28 13 53 | 3721 |
| | α Arietis | E. | 69 39 16 | 2350 | 67 54 29 | 2334 | 66 9 19 | 2319 | 64 23 47 | 2304 |
| 11 | Mars | W. | 108 5 18 | 2426 | 109 48 16 | 2412 | 111 31 34 | 2399 | 113 15 10 | 2387 |
| | Saturn | W. | 95 21 47 | 2253 | 97 8 56 | 2240 | 98 56 24 | 2227 | 100 44 11 | 2215 |
| | Antares | W. | 93 3 3 | 2202 | 94 51 28 | 2188 | 96 40 13 | 2175 | 98 29 18 | 2163 |
| | α Arietis | E. | 55 30 51 | 2237 | 53 43 18 | 2225 | 51 55 28 | 2214 | 50 7 21 | 2204 |
| | Aldebaran | E. | 86 53 46 | [illegible] | [illegible] 7 14 | 2265 | 83 20 23 | 2253 | 81 33 14 | 2241 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III h. | P.L. of diff. | VI h. | P.L. of diff. | IX h. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ |
| 22 | Saturn | W. | 102 32 16 | 2204 | 104 20 38 | 2193 | 106 9 16 | 2183 | 107 58 9 |
| | Antares | W. | 100 18 41 | 2151 | 102 8 22 | 2141 | 103 58 19 | 2130 | 105 48 32 |
| | α Aquilæ | W. | 54 27 57 | 3417 | 55 49 54 | 3352 | 57 13 5 | 3292 | 58 37 26 |
| | α Arietis | E. | 48 18 59 | 2195 | 46 30 24 | 2186 | 44 41 35 | 2178 | 42 52 35 |
| | Aldebaran | E. | 79 45 48 | 2230 | 77 58 5 | 2221 | 76 10 8 | 2211 | 74 21 57 |
| 23 | α Aquilæ | W. | 65 53 51 | 3024 | 67 23 34 | 2993 | 68 53 56 | 2964 | 70 24 54 |
| | Fomalhaut | W. | 37 46 27 | 2833 | 39 20 12 | 2770 | 40 55 19 | 2714 | 42 31 41 |
| | α Arietis | E. | 33 45 46 | 2159 | 31 56 17 | 2162 | 30 6 52 | 2167 | 28 17 35 |
| | Aldebaran | E. | 65 18 13 | 2173 | 63 29 5 | 2169 | 61 39 51 | 2168 | 59 50 35 |
| 24 | α Aquilæ | W. | 78 6 39 | 2851 | 79 40 1 | 2840 | 81 13 37 | 2832 | 82 47 23 |
| | Fomalhaut | W. | 50 47 47 | 2494 | 52 29 9 | 2471 | 54 11 3 | 2451 | 55 53 25 |
| | α Pegasi | W. | 30 30 48 | 3117 | 31 58 37 | 3006 | 33 28 42 | 2915 | 35 0 42 |
| | Aldebaran | E. | 50 44 26 | 2180 | 48 55 29 | 2187 | 47 6 42 | 2196 | 45 18 8 |
| | Pollux | E. | 93 13 41 | 2052 | 91 21 28 | 2052 | 89 29 14 | 2051 | 87 36 59 |
| 25 | α Aquilæ | W. | 90 37 14 | 2828 | 92 11 6 | 2834 | 93 44 50 | 2842 | 95 18 23 |
| | Fomalhaut | W. | 64 30 8 | 2383 | 66 14 7 | 2379 | 67 58 12 | 2375 | 69 42 22 |
| | α Pegasi | W. | 43 1 25 | 2593 | 44 40 30 | 2563 | 46 20 16 | 2538 | 48 0 37 |
| | Aldebaran | E. | 36 20 18 | 2295 | 34 34 11 | 2322 | 32 48 44 | 2355 | 31 4 4 |
| | Pollux | E. | 78 16 21 | 2064 | 76 24 27 | 2070 | 74 32 41 | 2074 | 72 41 2 |
| 26 | Fomalhaut | W. | 78 23 12 | 2385 | 80 7 9 | 2390 | 81 50 58 | 2397 | 83 34 37 |
| | α Pegasi | W. | 56 28 11 | 2456 | 58 10 26 | 2452 | 59 52 47 | 2449 | 61 35 12 |
| | α Arietis | W. | 12 53 49 | 2572 | 14 33 22 | 2479 | 16 15 5 | 2417 | 17 58 16 |
| | Pollux | E. | 63 25 13 | 2116 | 61 34 39 | 2124 | 59 44 17 | 2134 | 57 54 10 |
| | Regulus | E. | 100 15 34 | 2113 | 98 24 54 | 2120 | 96 34 26 | 2130 | 94 44 13 |
| | Sun | E. | 135 14 30 | 2412 | 133 31 12 | 2420 | 131 48 6 | 2431 | 130 5 15 |
| 27 | Fomalhaut | W. | 92 9 48 | 2455 | 93 52 4 | 2468 | 95 34 2 | 2481 | 97 15 42 |
| | α Pegasi | W. | 70 7 10 | 2460 | 71 49 19 | 2467 | 73 31 19 | 2474 | 75 13 9 |
| | α Arietis | W. | 26 44 11 | 2302 | 28 30 7 | 2302 | 30 16 4 | 2304 | 32 1 58 |
| | Pollux | E. | 48 47 27 | 2198 | 46 58 57 | 2210 | 45 10 44 | 2223 | 43 22 50 |
| | Regulus | E. | 85 36 52 | 2192 | 83 48 13 | 2204 | 81 59 51 | 2216 | 80 11 47 |
| | Sun | E. | 121 34 43 | 2497 | 119 53 25 | 2509 | 118 12 25 | 2522 | 116 31 43 |
| 28 | α Pegasi | W. | 83 39 19 | 2531 | 85 19 49 | 2543 | 87 0 2 | 2555 | 88 39 59 |
| | α Arietis | W. | 40 49 34 | 2343 | 42 34 31 | 2353 | 44 19 14 | 2363 | 46 3 42 |
| | Pollux | E. | 34 28 6 | 2302 | 32 42 10 | 2316 | 30 56 34 | 2331 | 29 11 20 |
| | Regulus | E. | 71 16 0 | 2292 | 69 29 48 | 2304 | 67 43 54 | 2317 | 65 58 20 |
| | Sun | E. | 108 12 44 | 2603 | 106 33 53 | 2618 | 104 55 22 | 2631 | 103 17 9 |
| 29 | α Arietis | W. | 54 42 5 | 2431 | 56 24 56 | 2443 | 58 7 29 | 2455 | 59 49 45 |
| | Aldebaran | W. | 25 10 45 | 2826 | 26 44 39 | 2791 | 28 19 19 | 2764 | 29 54 34 |
| | Pollux | E. | 20 30 48 | 2430 | 18 47 56 | 2450 | 17 5 32 | 2472 | 15 23 39 |
| | Regulus | E. | 57 15 19 | 2398 | 55 31 42 | 2411 | 53 48 23 | 2425 | 52 5 24 |
| | Sun | E. | 95 10 58 | 2718 | 93 34 42 | 2732 | 91 58 45 | 2747 | 90 23 8 |
| 30 | α Arietis | W. | 68 16 48 | 2530 | 69 57 20 | 2542 | 71 37 35 | 2553 | 73 17 34 |
| | Aldebaran | W. | 37 55 37 | 2702 | 39 32 14 | 2701 | 41 8 52 | 2702 | 42 45 29 |
| | Regulus | E. | 43 35 9 | 2505 | 41 54 2 | 2517 | 40 13 13 | 2531 | 38 32 43 |
| | Sun | E. | 82 29 43 | 2833 | 80 55 58 | 2847 | 79 22 31 | 2861 | 77 49 22 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Midnight. | P.L. of diff. | XV$^h$. | P.L. of diff. | XVIII$^h$. | P.L. of diff. | XXI$^h$. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 22 | Saturn | W. | 109 47 15 | 2165 | 111 36 35 | 2157 | 113 26 7 | 2151 | 115 15 49 | 2143 |
| | Antares | W. | 107 39 1 | 2110 | 109 29 45 | 2101 | 111 20 42 | 2094 | 113 11 51 | 2086 |
| | α Aquilæ | W. | 60 2 52 | 3186 | 61 29 18 | 3140 | 62 56 39 | 3097 | 64 24 52 | 3060 |
| | α Arietis | E. | 41 3 26 | 2167 | 39 14 8 | 2163 | 37 24 44 | 2160 | 35 35 16 | 2159 |
| | Aldebaran | E. | 72 33 33 | 2194 | 70 44 57 | 2188 | 68 56 11 | 2182 | 67 7 16 | 2177 |
| 23 | α Aquilæ | W. | 71 56 24 | 2916 | 73 28 22 | 2896 | 75 0 46 | 2878 | 76 33 33 | 2863 |
| | Fomalhaut | W. | 44 9 10 | 2620 | 45 47 38 | 2583 | 47 26 57 | 2549 | 49 7 2 | 2520 |
| | α Arietis | E. | 26 28 31 | 2186 | 24 39 43 | 2203 | 22 51 20 | 2225 | 21 3 30 | 2256 |
| | Aldebaran | E. | 58 1 17 | 2168 | 56 11 59 | 2169 | 54 22 44 | 2171 | 52 33 32 | 2175 |
| 24 | α Aquilæ | W. | 84 21 16 | 2823 | 85 55 14 | 2820 | 87 29 16 | 2821 | 89 3 17 | 2824 |
| | Fomalhaut | W. | 57 36 10 | 2420 | 59 19 16 | 2408 | 61 2 40 | 2398 | 62 46 18 | 2389 |
| | α Pegasi | W. | 36 34 21 | 2772 | 38 9 25 | 2716 | 39 45 44 | 2668 | 41 23 7 | 2627 |
| | Aldebaran | E. | 43 29 49 | 2219 | 41 41 50 | 2233 | 39 54 12 | 2251 | 38 7 0 | 2271 |
| | Pollux | E. | 85 44 46 | 2053 | 83 52 34 | 2055 | 82 0 26 | 2057 | 80 8 21 | 2060 |
| 25 | α Aquilæ | W. | 96 51 43 | 2865 | 98 24 47 | 2879 | 99 57 33 | 2895 | 101 29 58 | 2913 |
| | Fomalhaut | W. | 71 26 35 | 2373 | 73 10 48 | 2374 | 74 55 0 | 2377 | 76 39 8 | 2380 |
| | α Pegasi | W. | 49 41 27 | 2500 | 51 22 41 | 2485 | 53 4 16 | 2473 | 54 46 7 | 2464 |
| | Aldebaran | E. | 29 20 19 | 2438 | 27 37 38 | 2491 | 25 56 12 | 2556 | 24 16 17 | 2635 |
| | Pollux | E. | 70 49 31 | 2086 | 68 58 10 | 2093 | 67 7 0 | 2100 | 65 16 1 | 2107 |
| 26 | Fomalhaut | W. | 85 18 6 | 2412 | 87 1 23 | 2422 | 88 44 26 | 2432 | 90 27 15 | 2443 |
| | α Pegasi | W. | 63 17 39 | 2447 | 65 0 7 | 2449 | 66 42 32 | 2451 | 68 24 54 | 2455 |
| | α Arietis | W. | 19 42 27 | 2346 | 21 27 20 | 2326 | 23 12 41 | 2313 | 24 58 21 | 2306 |
| | Pollux | E. | 56 4 18 | 2154 | 54 14 41 | 2165 | 52 25 20 | 2175 | 50 36 15 | 2186 |
| | Regulus | E. | 92 54 14 | 2149 | 91 4 30 | 2159 | 89 15 1 | 2170 | 87 25 48 | 2181 |
| | Sun | E. | 128 22 38 | 2450 | 126 40 15 | 2462 | 124 58 8 | 2473 | 123 16 17 | 2485 |
| 27 | Fomalhaut | W. | 98 57 2 | 2511 | 100 38 0 | 2526 | 102 18 37 | 2543 | 103 58 51 | 2559 |
| | α Pegasi | W. | 76 54 49 | 2489 | 78 36 17 | 2499 | 80 17 32 | 2509 | 81 58 33 | 2520 |
| | α Arietis | W. | 33 47 48 | 2312 | 35 33 30 | 2319 | 37 19 2 | 2326 | 39 4 24 | 2334 |
| | Pollux | E. | 41 35 14 | 2248 | 39 47 58 | 2261 | 38 1 1 | 2274 | 36 14 23 | 2288 |
| | Regulus | E. | 78 24 1 | 2240 | 76 36 33 | 2252 | 74 49 23 | 2265 | 73 2 32 | 2278 |
| | Sun | E. | 114 51 18 | 2548 | 113 11 12 | 2561 | 111 31 24 | 2575 | 109 51 55 | 2588 |
| 28 | α Pegasi | W. | 90 19 38 | 2582 | 91 58 58 | 2596 | 93 37 59 | 2610 | 95 16 41 | 2625 |
| | α Arietis | W. | 47 47 54 | 2384 | 49 31 52 | 2396 | 51 15 33 | 2408 | 52 58 57 | 2419 |
| | Pollux | E. | 27 26 28 | 2362 | 25 41 58 | 2377 | 23 57 50 | 2394 | 22 14 7 | 2411 |
| | Regulus | E. | 64 13 5 | 2344 | 62 28 9 | 2357 | 60 43 33 | 2371 | 58 59 16 | 2385 |
| | Sun | E. | 101 39 16 | 2660 | 100 1 42 | 2675 | 98 24 28 | 2689 | 96 47 33 | 2704 |
| 29 | α Arietis | W. | 61 31 44 | 2480 | 63 13 26 | 2492 | 64 54 50 | 2504 | 66 35 58 | 2517 |
| | Aldebaran | W. | 31 30 16 | 2729 | 33 6 18 | 2717 | 34 42 35 | 2709 | 36 19 3 | 2704 |
| | Pollux | E. | 13 42 20 | 2527 | 12 1 44 | 2565 | 10 22 1 | 2617 | 8 43 29 | 2698 |
| | Regulus | E. | 50 22 43 | 2451 | 48 40 21 | 2465 | 46 58 18 | 2478 | 45 16 34 | 2492 |
| | Sun | E. | 88 47 49 | 2776 | 87 12 50 | 2790 | 85 38 9 | 2804 | 84 3 47 | 2818 |
| 30 | α Arietis | W. | 74 57 15 | 2578 | 76 36 40 | 2590 | 78 15 48 | 2602 | 79 54 41 | 2614 |
| | Aldebaran | W. | 44 22 4 | 2707 | 45 58 35 | 2711 | 47 35 0 | 2715 | 49 11 20 | 2721 |
| | Regulus | E. | 36 52 30 | 2556 | 35 12 34 | 2569 | 33 32 56 | 2581 | 31 53 35 | 2593 |
| | Sun | E. | 76 [illegible] | [illegible] | [illegible] 43 57 | 2902 | 73 11 40 | 2915 | 71 39 40 | 2928 |

## CONFIGURATIONS OF THE SATELLITES OF JUPITER,

At $7^h$, Mean Time.

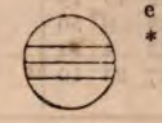
| Day of the Month. | West. | East. |
|---|---|---|
| 1 | 4· ·3 2· | ○ ·1 |
| 2 | ·4 ·2 .1 | ○ ·3 |
| 3 | ·4 | ○ ·2 1· 3· |
| 4 | ·4 ·1 | ○ 2· 3· |
| 5 | 2· ·4 3· | ○ 1· |
| 6 | ● ·1 3· ·2 | ○ ·4 |
| 7 | ·3 1· | ○ ·2 ·4 |
| 8 | 2· ○ ·3 | ○ ·1 ·4 |
| 9 | ·2 1· | ○ ·3 ·4 |
| 10 | | ○ ·2 1· ·3 4· |
| 11 | ·1 | ○ 2· 3· 4· |
| 12 | 2· | ○ 3· 1· 4· |
| 13 | 3· ·2 | ○ 4· ·1 ● |
| 14 | .3 1· | ○ 4· ·2 |
| 15 | ·3 4· | ○ 2· ·1 |
| 16 | 4· .2 1· | ○ ·3 |
| 17 | 4· | ○ ·2 1· ·3 |
| 18 | .4 ·1 | ○ 2· 3· |
| 19 | ·4 2· | ○ 1· 3· |
| 20 | ·4 3· ·2 ·1 | ○ |
| 21 | .3 ·4 | ○ ·2 ○ 1· |
| 22 | ·3 ·4 | ○ ·1 2· |
| 23 | 2· 1· | ○ ·4 ● ·3 |
| 24 | ·2 ● | ○ ·1 ·3 ·4 |
| 25 | .1 | ○ 2· 3· ·4 |
| 26 | 2· | ○ 1· ·3· ·4 |
| 27 | ·2 3· ·1 | ○ 4· |

The SATELLITES of JUPITER
are not visible
from the 27th day of September until the 17th day of November,
JUPITER being too near to the SUN.

This Table represents, at $7^h$ after *Mean Noon* of each day, the relative positions of images of Jupiter and his Satellites, as they would appear (disregarding their latitudes) in inverting telescope. Jupiter is indicated by the white circles (○) in the centre of the page; Satellites by points. The numerals 1, 2, 3, and 4, annexed to the points, serve to distin the Satellites from each other; and their positions are such as to indicate the directions of the S lites' motions, which are in all cases to be considered as *towards the numerals.* When a Satellit at its greatest elongation, the point is placed above or below the centre of the numeral. A w circle (○) at the left or right hand of the page, denotes that the Satellite placed by the side of *on* the disc of Jupiter, and a black circle (●) that it is either *behind* the disc, or in the shadow Jupiter.

## ECLIPSES OF THE SATELLITES OF JUPITER.

| Satellite. | Day of the Month. | Mean Time. | Sidereal Time. | PHASE as seen in an inverting Telescope. |
|---|---|---|---|---|
| | | h m s | h m s | |
| I. | 1 | 0 13 30·9 | 10 53 24·9 | Em. |
| | 2 | 18 42 8·2 | 5 29 0·9 | Em. |
| | 4 | 13 10 42·5 | 0 4 33·9 | Em. |
| | 6 | 7 39 20·4 | 18 40 10·5 | Em. |
| | 8 | 2 7 54·3 | 13 15 43·0 | Em. |
| | 9 | 20 36 31·6 | 7 51 18·9 | Em. |
| | 11 | 15 5 5·7 | 2 26 51·7 | Em. |
| | 13 | 9 33 42·0 | 21 2 26·6 | Em. |
| | 15 | 4 2 15·7 | 15 37 59·0 | Em. |
| | 16 | 22 30 52·1 | 10 13 34·2 | Em. |
| | 18 | 16 59 25·1 | 4 49 5·8 | Em. |
| | 20 | 11 28 1·0 | 23 24 40·4 | Em. |
| | 22 | 5 56 33·7 | 18 0 11·8 | Em. |
| | 24 | 0 25 9·5 | 12 35 46·2 | Em. |
| | 25 | 18 53 42·4 | 7 11 17·7 | Em. |
| | 27 | 13 22 17·3 | 1 46 51·3 | Em. |
| II. | 3 | 1 33 2·9 | 12 21 3·1 | Em. |
| | 6 | 14 51 34·4 | 1 53 35·5 | Em. |
| | 10 | 4 9 17·2 | 15 25 19·0 | Em. |
| | 13 | 17 27 40·4 | 4 57 43·0 | Em. |
| | 17 | 6 45 18·8 | 18 29 22·1 | Em. |
| | 20 | 20 3 34·0 | 8 1 38·1 | Em. |
| | 24 | 9 21 7·4 | 21 33 12·1 | Em. |
| | 27 | 22 39 14·1 | 11 5 19·6 | Em. |
| III. | 1 | 17 11 21·7 | 3 54 2·9 | Im. |
| | 1 | 19 33 12·3 | 6 16 16·8 | Em. |
| | 8 | 21 10 11·6 | 8 21 7·9 | Im. |
| | 8 | 23 31 20·6 | 10 42 40·1 | Em. |
| | 16 | 3 29 39·2 | 15 9 13·7 | Em. |
| | 23 | 7 27 22·8 | 19 35 12·3 | Em. |



THE ECLIPSES OF THE SATELLITES OF JUPITER

are not visible

from the 27th day of September until the 17th day of November,

JUPITER being too near to the SUN.

## APPROXIMATE SIDEREAL TIMES
OF THE
## OCCULTATIONS OF JUPITER'S SATELLITES BY JUPITER,
AND OF THE
## TRANSITS OF THE SATELLITES AND THEIR SHADOWS OVER THE DISC OF THE PLANET.

| Satellite. | Occultations. | | Transits of Satellites. | | Transits of Shadows | |
|---|---|---|---|---|---|---|
| | Immersion. | Emersion. | Ingress. | Egress. | Ingress. | Egress. |
| | d h m | d h m | d h m | d h m | d h m | d h |
| I. | 2 2 30 | | 1 5 17 | 1 7 32 | 1 6 6 | 1 8 |
| | 4 21 7 | | 3 23 54 | 3 2 9 | 3 0 41 | 3 2 |
| | 6 15 44 | | 5 18 31 | 5 20 46 | 5 19 17 | 5 21 |
| | 7 10 21 | | 7 13 8 | 7 15 23 | 7 13 53 | 7 16 |
| | 9 4 58 | | 8 7 45 | 8 10 0 | 8 8 28 | 8 10 |
| | 11 23 35 | In | 10 2 23 | 10 4 38 | 10 3 4 | 10 5 |
| | 13 18 13 | | 12 21 0 | 12 23 15 | 12 21 39 | 12 23 |
| | 15 12 50 | the | 14 15 37 | 14 17 52 | 14 16 15 | 14 18 |
| | 16 7 27 | | 15 10 14 | 16 12 29 | 15 10 51 | 16 13 |
| | 18 2 4 | Shadow. | 17 4 51 | 17 7 6 | 17 5 26 | 17 7 |
| | 20 20 41 | | 19 23 29 | 19 1 44 | 19 0 2 | 19 2 |
| | 22 15 19 | | 21 18 6 | 21 20 21 | 21 18 38 | 21 20 |
| | 23 9 56 | | 23 12 43 | 23 14 58 | 23 13 13 | 23 15 |
| | 25 4 33 | | 24 7 21 | 24 9 36 | 24 7 49 | 24 10 |
| | 27 23 10 | | 26 1 58 | 26 4 13 | 26 2 24 | 26 4 |
| II. | 2 8 20 | | 1 13 7 | 1 15 38 | 1 14 48 | 1 17 |
| | 6 21 59 | | 4 2 44 | 4 5 15 | 4 4 20 | 4 6 |
| | 10 11 37 | In | 8 16 22 | 8 18 52 | 8 17 51 | 8 20 |
| | 13 1 16 | the | 11 6 0 | 11 8 30 | 11 7 23 | 11 9 |
| | 17 14 54 | | 15 19 37 | 15 22 8 | 15 20 54 | 15 23 |
| | 20 4 33 | Shadow. | 18 9 16 | 18 11 46 | 18 10 26 | 19 12 |
| | 24 18 12 | | 22 22 54 | 22 1 24 | 22 23 57 | 22 2 |
| | 27 7 51 | | 26 12 32 | 26 15 2 | 26 13 28 | 26 15 |
| III. | 1 0 24 | 1 3 18 | 5 14 53 | 5 17 46 | 5 18 5 | 5 20 |
| | 8 5 15 | 8 8 8 | 12 19 46 | 12 22 38 | 12 22 32 | 12 1 |
| | 15 10 9 | In the | 19 0 40 | 19 3 30 | 19 2 59 | 19 5 |
| | 23 15 2 | Shadow. | 26 5 35 | 26 8 24 | 26 7 27 | 26 10 |

THE SATELLITES OF JUPITER

are not visible

from the 27th day of September until the 17th day of November,

JUPITER being too near to the SUN.

| Day of the Month. | For correcting the Places of the Fixed Stars. At Mean Midnight, Logarithm of A | B | C | D | Mean Time of Transit of the First Point of Aries, | Mean Equinoctial Time, adding 0d·293960. Days. | From Mean Noon of January 1. Day of the Year. | Fraction of the Year. |
|---|---|---|---|---|---|---|---|---|
| | | | | | h m s | | | |
| 1 | +1·2409 | −0·8669 | +9·8834 | −0·9685 | 13 17 57·11 | 162 | 243 | ·665 |
| 2 | 1·2437 | 0·8475 | 9·8847 | 0·9689 | 13 14 1·20 | 163 | 244 | ·668 |
| 3 | 1·2463 | 0·8270 | 9·8861 | 0·9694 | 13 10 5·29 | 164 | 245 | ·671 |
| 4 | +1·2488 | −0·8054 | +9·8874 | −0·9698 | 13 6 9·38 | 165 | 246 | ·674 |
| 5 | 1·2512 | 0·7824 | 9·8887 | 0·9702 | 13 2 13·47 | 166 | 247 | ·676 |
| 6 | 1·2534 | 0·7581 | 9·8900 | 0·9706 | 12 58 17·56 | 167 | 248 | ·679 |
| 7 | +1·2555 | −0·7321 | +9·8913 | −0·9710 | 12 54 21·65 | 168 | 249 | ·682 |
| 8 | 1·2574 | 0·7044 | 9·8926 | 0·9713 | 12 50 25·75 | 169 | 250 | ·684 |
| 9 | 1·2593 | 0·6746 | 9·8939 | 0·9716 | 12 46 29·85 | 170 | 251 | ·687 |
| 10 | +1·2610 | −0·6425 | +9·8951 | −0·9719 | 12 42 33·94 | 171 | 252 | ·690 |
| 11 | 1·2625 | 0·6076 | 9·8964 | 0·9721 | 12 38 38·04 | 172 | 253 | ·693 |
| 12 | 1·2640 | 0·5696 | 9·8976 | 0·9724 | 12 34 42·13 | 173 | 254 | ·695 |
| 13 | +1·2653 | −0·5277 | +9·8989 | −0·9726 | 12 30 46·22 | 174 | 255 | ·698 |
| 14 | 1·2664 | 0·4812 | 9·9001 | 0·9727 | 12 26 50·32 | 175 | 256 | ·701 |
| 15 | 1·2675 | 0·4289 | 9·9013 | 0·9729 | 12 22 54·40 | 176 | 257 | ·704 |
| 16 | +1·2684 | −0·3694 | +9·9025 | −0·9730 | 12 18 58·49 | 177 | 258 | ·706 |
| 17 | 1·2692 | 0·3001 | 9·9037 | 0·9731 | 12 15 2·58 | 178 | 259 | ·709 |
| 18 | 1·2699 | 0·2174 | 9·9049 | 0·9731 | 12 11 6·67 | 179 | 260 | ·712 |
| 19 | +1·2704 | −0·1150 | +9·9061 | −0·9732 | 12 7 10·75 | 180 | 261 | ·715 |
| 20 | 1·2708 | 9·9805 | 9·9073 | 0·9732 | 12 3 14·85 | 181 | 262 | ·717 |
| 21 | 1·2711 | 9·7844 | 9·9084 | 0·9731 | 11 59 18·94 | 182 | 263 | ·720 |
| 22 | +1·2713 | −9·4164 | +9·9096 | −0·9731 | 11 55 23·04 | 183 | 264 | ·723 |
| 23 | 1·2713 | +8·9409 | 9·9108 | 0·9730 | 11 51 27·14 | 184 | 265 | ·726 |
| 24 | 1·2712 | 9·6391 | 9·9119 | 0·9729 | 11 47 31·23 | 185 | 266 | ·728 |
| 25 | +1·2710 | +9·8943 | +9·9131 | −0·9727 | 11 43 35·33 | 186 | 267 | ·731 |
| 26 | 1·2706 | 0·0540 | 9·9142 | 0·9725 | 11 39 39·42 | 187 | 268 | ·734 |
| 27 | 1·2702 | 0·1705 | 9·9154 | 0·9723 | 11 35 43·52 | 188 | 269 | ·736 |
| 28 | +1·2695 | +0·2621 | +9·9166 | −0·9721 | 11 31 47·60 | 189 | 270 | ·739 |
| 29 | 1·2688 | 0·3378 | 9·9177 | 0·9718 | 11 27 51·69 | 190 | 271 | ·742 |
| 30 | 1·2679 | 0·4021 | 9·9189 | 0·9715 | 11 23 55·77 | 191 | 272 | ·745 |
| 31 | +1·2669 | +0·4580 | +9·9200 | −0·9712 | 11 19 59·86 | 192 | 273 | ·747 |

## AT APPARENT NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | Diff. for 1 hour. | THE SUN'S Apparent Declination. | Diff. for 1 hour. | Sidereal Time of the Semidiam. passing the Meridian.* | Equation of Time, *to be subtracted from Apparent Time.* |
|---|---|---|---|---|---|---|---|
| | | h m s | s | ° ′ ″ | ″ | m s | m s |
| Tues. | 1 | 12 27 56 ·09 | 9 ·062 | S. 3 1 14 ·3 | 58 ·32 | 1 4 ·30 | 10 10 ·67 |
| Wed. | 2 | 12 31 33 ·58 | 9 ·075 | 3 24 34 ·1 | 58 ·23 | 1 4 ·34 | 10 29 ·68 |
| Thur. | 3 | 12 35 11 ·39 | 9 ·089 | 3 47 51 ·7 | 58 ·13 | 1 4 ·38 | 10 48 ·38 |
| Frid. | 4 | 12 38 49 ·53 | 9 ·104 | 4 11 6 ·8 | 58 ·01 | 1 4 ·43 | 11 6 ·74 |
| Sat. | 5 | 12 42 28 ·02 | 9 ·120 | 4 34 19 ·0 | 57 ·87 | 1 4 ·48 | 11 24 ·74 |
| *Sun.* | 6 | 12 46 6 ·89 | 9 ·136 | 4 57 27 ·9 | 57 ·72 | 1 4 ·53 | 11 42 ·38 |
| Mon. | 7 | 12 49 46 ·15 | 9 ·152 | 5 20 33 ·1 | 57 ·55 | 1 4 ·59 | 11 59 ·62 |
| Tues. | 8 | 12 53 25 ·81 | 9 ·170 | 5 43 34 ·3 | 57 ·36 | 1 4 ·65 | 12 16 ·46 |
| Wed. | 9 | 12 57 5 ·89 | 9 ·188 | 6 6 31 ·0 | 57 ·16 | 1 4 ·71 | 12 32 ·89 |
| Thur. | 10 | 13 0 46 ·41 | 9 ·207 | 6 29 22 ·8 | 56 ·94 | 1 4 ·78 | 12 48 ·88 |
| Frid. | 11 | 13 4 27 ·39 | 9 ·227 | 6 52 9 ·4 | 56 ·71 | 1 4 ·85 | 13 4 ·41 |
| Sat. | 12 | 13 8 8 ·85 | 9 ·247 | 7 14 50 ·4 | 56 ·45 | 1 4 ·93 | 13 19 ·47 |
| *Sun.* | 13 | 13 11 50 ·78 | 9 ·268 | 7 37 25 ·3 | 56 ·19 | 1 5 ·00 | 13 34 ·05 |
| Mon. | 14 | 13 15 33 ·22 | 9 ·290 | 7 59 53 ·8 | 55 ·91 | 1 5 ·08 | 13 48 ·14 |
| Tues. | 15 | 13 19 16 ·18 | 9 ·312 | 8 22 15 ·6 | 55 ·60 | 1 5 ·16 | 14 1 ·70 |
| Wed. | 16 | 13 22 59 ·67 | 9 ·335 | 8 44 30 ·0 | 55 ·29 | 1 5 ·24 | 14 14 ·74 |
| Thur. | 17 | 13 26 43 ·71 | 9 ·359 | 9 6 36 ·9 | 54 ·96 | 1 5 ·32 | 14 27 ·22 |
| Frid. | 18 | 13 30 28 ·33 | 9 ·384 | 9 28 35 ·9 | 54 ·61 | 1 5 ·41 | 14 39 ·12 |
| Sat. | 19 | 13 34 13 ·54 | 9 ·409 | 9 50 26 ·6 | 54 ·25 | 1 5 ·50 | 14 50 ·43 |
| *Sun.* | 20 | 13 37 59 ·35 | 9 ·435 | 10 12 8 ·6 | 53 ·87 | 1 5 ·59 | 15 1 ·13 |
| Mon. | 21 | 13 41 45 ·79 | 9 ·462 | 10 33 41 ·5 | 53 ·48 | 1 5 ·68 | 15 11 ·21 |
| Tues. | 22 | 13 45 32 ·89 | 9 ·491 | 10 55 5 ·0 | 53 ·07 | 1 5 ·78 | 15 20 ·64 |
| Wed. | 23 | 13 49 20 ·67 | 9 ·519 | 11 16 18 ·8 | 52 ·65 | 1 5 ·88 | 15 29 ·39 |
| Thur. | 24 | 13 53 9 ·13 | 9 ·549 | 11 37 22 ·5 | 52 ·22 | 1 5 ·98 | 15 37 ·46 |
| Frid. | 25 | 13 56 58 ·30 | 9 ·579 | 11 58 15 ·7 | 51 ·76 | 1 6 ·08 | 15 44 ·83 |
| Sat. | 26 | 14 0 48 ·19 | 9 ·610 | 12 18 57 ·9 | 51 ·29 | 1 6 ·18 | 15 51 ·48 |
| *Sun.* | 27 | 14 4 38 ·83 | 9 ·642 | 12 39 28 ·8 | 50 ·81 | 1 6 ·29 | 15 57 ·39 |
| Mon. | 28 | 14 8 30 ·23 | 9 ·673 | 12 59 48 ·3 | 50 ·30 | 1 6 ·40 | 16 2 ·53 |
| Tues. | 29 | 14 12 22 ·39 | 9 ·706 | 13 19 55 ·6 | 49 ·78 | 1 6 ·51 | 16 6 ·92 |
| Wed. | 30 | 14 16 15 ·33 | 9 ·739 | 13 39 50 ·3 | 49 ·25 | 1 6 ·62 | 16 10 ·52 |
| Thur. | 31 | 14 20 9 ·07 | 9 ·773 | 13 59 32 ·2 | 48 ·69 | 1 6 ·73 | 16 13 ·33 |
| Frid. | 32 | 14 24 3 ·62 | | S. 14 19 0 ·8 | | 1 6 ·84 | 16 15 ·32 |

* *Mean* Time of the Semidiameter passing may be found by subtracting 0s·18 from the *Sidere*

## AT MEAN NOON.

| | Day of the Month. | THE SUN'S Apparent Right Ascension. | THE SUN'S Apparent Declination. | THE SUN'S Semidiam.* | Equation of Time, *to be added to Mean Time.* | Sidereal Time. |
|---|---|---|---|---|---|---|
| | | h m s | ° ′ ″ | ′ ″ | m s | h m s |
| es. | 1 | 12 27 57·62 | S. 3 1 24·2 | 16 0·5 | 10 10·81 | 12 38 8·43 |
| d. | 2 | 12 31 35·17 | 3 24 44·3 | 16 0·7 | 10 29·82 | 12 42 4·99 |
| ur. | 3 | 12 35 13·02 | 3 48 2·2 | 16 1·0 | 10 48·52 | 12 46 1·54 |
| d. | 4 | 12 38 51·21 | 4 11 17·5 | 16 1·3 | 11 6·88 | 12 49 58·09 |
| . | 5 | 12 42 29·76 | 4 34 30·0 | 16 1·6 | 11 24·88 | 12 53 54·64 |
| n. | 6 | 12 46 8·67 | 4 57 39·2 | 16 1·8 | 11 42·52 | 12 57 51·19 |
| n. | 7 | 12 49 47·98 | 5 20 44·6 | 16 2·1 | 11 59·76 | 13 1 47·74 |
| es. | 8 | 12 53 27·69 | 5 43 46·0 | 16 2·4 | 12 16·60 | 13 5 44·29 |
| d. | 9 | 12 57 7·81 | 6 6 43·0 | 16 2·7 | 12 33·03 | 13 9 40·84 |
| ur. | 10 | 13 0 48·37 | 6 29 35·0 | 16 2·9 | 12 49·02 | 13 13 37·39 |
| d. | 11 | 13 4 29·40 | 6 52 21·8 | 16 3·2 | 13 4·55 | 13 17 33·95 |
| . | 12 | 13 8 10·90 | 7 15 3·0 | 16 3·5 | 13 19·61 | 13 21 30·51 |
| n. | 13 | 13 11 52·88 | 7 37 38·1 | 16 3·8 | 13 34·19 | 13 25 27·07 |
| n. | 14 | 13 15 35·36 | 8 0 6·7 | 16 4·1 | 13 48·27 | 13 29 23·63 |
| es. | 15 | 13 19 18·36 | 8 22 28·6 | 16 4·3 | 14 1·83 | 13 33 20·19 |
| d. | 16 | 13 23 1·88 | 8 44 43·2 | 16 4·6 | 14 14·86 | 13 37 16·74 |
| ur. | 17 | 13 26 45·96 | 9 6 50·2 | 16 4·9 | 14 27·34 | 13 41 13·30 |
| d. | 18 | 13 30 30·62 | 9 28 49·3 | 16 5·2 | 14 39·23 | 13 45 9·85 |
| . | 19 | 13 34 15·86 | 9 50 40·1 | 16 5·4 | 14 50·54 | 13 49 6·40 |
| n. | 20 | 13 38 1·71 | 10 12 22·1 | 16 5·7 | 15 1·24 | 13 53 2·95 |
| n. | 21 | 13 41 48·19 | 10 33 55·1 | 16 6·0 | 15 11·31 | 13 56 59·50 |
| es. | 22 | 13 45 35·31 | 10 55 18·6 | 16 6·3 | 15 20·74 | 14 0 56·05 |
| d. | 23 | 13 49 23·12 | 11 16 32·4 | 16 6·5 | 15 29·48 | 14 4 52·60 |
| ur. | 24 | 13 53 11·61 | 11 37 36·1 | 16 6·8 | 15 37·55 | 14 8 49·16 |
| d. | 25 | 13 57 0·81 | 11 58 29·3 | 16 7·0 | 15 44·91 | 14 12 45·72 |
| . | 26 | 14 0 50·73 | 12 19 11·5 | 16 7·3 | 15 51·55 | 14 16 42·28 |
| n. | 27 | 14 4 41·39 | 12 39 42·4 | 16 7·5 | 15 57·45 | 14 20 38·84 |
| n. | 28 | 14 8 32·81 | 13 0 1·8 | 16 7·7 | 16 2·59 | 14 24 35·40 |
| es. | 29 | 14 12 24·99 | 13 20 9·0 | 16 8·0 | 16 6·97 | 14 28 31·96 |
| d. | 30 | 14 16 17·95 | 13 40 3·7 | 16 8·2 | 16 10·56 | 14 32 28·51 |
| ur. | 31 | 14 20 11·71 | 13 59 45·5 | 16 8·5 | 16 13·36 | 14 36 25·07 |
| id. | 32 | 14 24 6·28 | S. 14 19 13·9 | 16 8·7 | 16 15·34 | 14 40 21·62 |

* The Semidiameter for *Apparent* Noon may be assumed the same as that for Mean Noon.

## MEAN TIME.

| Day of the Month. | THE SUN'S *Apparent* Longitude. *Noon.* | THE SUN'S *Apparent* Latitude. *Noon.* | Logarithm of the Radius Vector of the Earth. *Noon.* | THE MOON'S Semidiameter. *Noon.* | THE MOON'S Semidiameter. *Midnight.* | THE MOON'S Horizontal Pa *Noon.* | THE MOON'S Horizontal Pa *M* |
|---|---|---|---|---|---|---|---|
| | ° ′ ″ | ″ | | ′ ″ | ′ ″ | ′ ″ | |
| 1 | 187 36 46·6 | N.0·84 | 0·0002022 | 15 34·9 | 15 29·5 | 57 10·9 | 56 |
| 2 | 188 35 52·7 | 0·75 | 0·0000798 | 15 24·3 | 15 19·4 | 56 31·9 | 56 |
| 3 | 189 35 1·0 | 0·63 | 9·9999570 | 15 14·8 | 15 10·5 | 55 56·9 | 55 |
| 4 | 190 34 11·6 | 0·51 | 9·9998338 | 15 6·5 | 15 2·8 | 55 26·5 | 55 |
| 5 | 191 33 24·4 | 0·39 | 9·9997101 | 14 59·4 | 14 56·3 | 55 0·4 | 55 |
| 6 | 192 32 39·4 | 0·25 | 9·9995859 | 14 53·4 | 14 50·8 | 54 38·6 | 54 |
| 7 | 193 31 56·6 | 0·12 | 9·9994611 | 14 48·5 | 14 46·6 | 54 20·6 | 54 |
| 8 | 194 31 15·8 | N.0·01 | 9·9993357 | 14 45·0 | 14 43·6 | 54 7·6 | 54 |
| 9 | 195 30 37·1 | S.0·08 | 9·9992100 | 14 42·7 | 14 42·1 | 53 59·2 | 53 |
| 10 | 196 30 0·2 | 0·14 | 9·9990839 | 14 42·0 | 14 42·3 | 53 56·6 | 53 |
| 11 | 197 29 25·5 | 0·18 | 9·9989574 | 14 43·0 | 14 44·3 | 54 0·5 | 53 |
| 12 | 198 28 52·7 | 0·19 | 9·9988307 | 14 46·1 | 14 48·6 | 54 11·9 | 53 |
| 13 | 199 28 21·6 | 0·17 | 9·9987040 | 14 51·5 | 14 55·2 | 54 31·7 | 53 |
| 14 | 200 27 52·3 | 0·12 | 9·9985774 | 14 59·4 | 15 4·3 | 55 0·6 | 53 |
| 15 | 201 27 24·8 | S.0·04 | 9·9984510 | 15 9·8 | 15 16·0 | 55 38·8 | 53 |
| 16 | 202 26 58·8 | N.0·06 | 9·9983250 | 15 22·6 | 15 29·8 | 56 25·7 | 53 |
| 17 | 203 26 34·6 | 0·18 | 9·9981995 | 15 37·3 | 15 45·2 | 57 19·7 | 53 |
| 18 | 204 26 12·2 | 0·31 | 9·9980748 | 15 53·2 | 16 1·2 | 58 17·9 | 53 |
| 19 | 205 25 51·6 | 0·44 | 9·9979509 | 16 9·0 | 16 16·4 | 59 15·8 | 53 |
| 20 | 206 25 32·7 | 0·58 | 9·9978280 | 16 23·2 | 16 29·3 | 60 8·2 | 6 |
| 21 | 207 25 15·6 | 0·70 | 9·9977063 | 16 34·4 | 16 38·4 | 60 49·2 | 6 |
| 22 | 208 25 0·4 | 0·80 | 9·9975858 | 16 41·2 | 16 42·7 | 61 14·3 | 6 |
| 23 | 209 24 47·4 | 0·89 | 9·9974666 | 16 42·8 | 16 41·6 | 61 20·0 | 6 |
| 24 | 210 24 36·4 | 0·95 | 9·9973486 | 16 39·1 | 16 35·4 | 61 6·4 | 6 |
| 25 | 211 24 27·4 | 0·98 | 9·9972319 | 16 30·6 | 16 25·0 | 60 35·4 | 6 |
| 26 | 212 24 20·6 | 0·99 | 9·9971165 | 16 18·5 | 16 11·6 | 59 51·0 | 3 |
| 27 | 213 24 15·9 | 0·96 | 9·9970023 | 16 4·3 | 15 56·8 | 58 58·7 | 3 |
| 28 | 214 24 13·5 | 0·90 | 9·9968892 | 15 49·4 | 15 42·0 | 58 3·9 | |
| 29 | 215 24 13·1 | 0·81 | 9·9967772 | 15 34·9 | 15 28·1 | | |
| 30 | 216 24 14·8 | 0·71 | 9·9966663 | 15 21·8 | 15 | | |
| 31 | 217 24 18·7 | 0·59 | 9·9965562 | 15 10·4 | 15 | | |
| 32 | 218 24 24·9 | N.0·45 | 9·9964470 | 15 1·0 | 14 57 | | |

## MEAN TIME.

| | Day of the Month. | THE MOON'S Longitude. Noon. | Longitude. Midnight. | Latitude. Noon. | Latitude. Midnight. | Age. Noon. | Meridian Passage. |
|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | ° ′ ″ | ° ′ ″ | ° ′ ″ | d | h m |
| s. | 1 | 117 31 44·4 | 124 5 37·8 | N.3 55 30·6 | N.3 29 59·3 | 23·6 | 20 5·8 |
| l. | 2 | 130 35 4·8 | 137 0 22·2 | 3 2 3·0 | 2 32 5·9 | 24·6 | 20 53·8 |
| r. | 3 | 143 21 50·7 | 149 39 48·1 | 2 0 33·6 | 1 27 51·0 | 25·6 | 21 38·1 |
| l. | 4 | 155 54 33·5 | 162 6 23·5 | N.0 54 22·4 | N.0 20 32·3 | 26·6 | 22 19·8 |
| | 5 | 168 15 35·9 | 174 22 24·1 | S.0 13 16·5 | S.0 46 41·1 | 27·6 | 23 0·1 |
| | 6 | 180 27 3·0 | 186 29 45·5 | 1 19 20·1 | 1 50 52·7 | 28·6 | 23 40·0 |
| a. | 7 | 192 30 44·9 | 198 30 12·3 | 2 21 0·0 | 2 49 23·7 | 29·6 | ó |
| s. | 8 | 204 28 20·6 | 210 25 22·3 | 3 15 47·8 | 3 39 57·5 | 0·9 | 0 20·6 |
| d. | 9 | 216 21 30·9 | 222 17 0·6 | 4 1 39·2 | 4 20 40·7 | 1·9 | 1 2·7 |
| ur. | 10 | 228 12 7·4 | 234 7 8·3 | 4 36 52·6 | 4 50 5·0 | 2·9 | 1 47·1 |
| d. | 11 | 240 2 23·2 | 245 58 13·4 | 5 0 11·7 | 5 7 5·5 | 3·9 | 2 34·2 |
| | 12 | 251 55 2·4 | 257 53 15·3 | 5 10 42·3 | 5 10 57·7 | 4·9 | 3 24·0 |
| n. | 13 | 263 53 20·0 | 269 55 45·7 | 5 7 49·1 | 5 1 15·0 | 5·9 | 4 15·8 |
| n. | 14 | 276 1 3·4 | 282 9 45·2 | 4 51 14·3 | 4 37 48·4 | 6·9 | 5 8·8 |
| es. | 15 | 288 22 24·3 | 294 39 33·9 | 4 20 59·1 | 4 0 50·1 | 7·9 | 6 1·6 |
| d. | 16 | 301 1 46·2 | 307 29 32·9 | 3 37 26·8 | 3 10 58·1 | 8·9 | 6 53·4 |
| ur. | 17 | 314 3 22·6 | 320 43 40·0 | 2 41 35·0 | 2 9 32·5 | 9·9 | 7 43·7 |
| d. | 18 | 327 30 44·6 | 334 24 50·1 | 1 35 8·9 | S.0 58 48·4 | 10·9 | 8 32·7 |
| | 19 | 341 26 1·5 | 348 34 13·4 | S.0 20 59·3 | N.0 17 45·2 | 11·9 | 9 21·2 |
| n. | 20 | 355 49 10·1 | 3 10 22·9 | N.0 56 46·8 | 1 35 23·0 | 12·9 | 10 10·4 |
| n. | 21 | 10 37 10·3 | 18 8 39·5 | 2 12 48·3 | 2 48 16·3 | 13·9 | 11 1·6 |
| es. | 22 | 25 43 44·7 | 33 21 13·5 | 3 21 1·2 | 3 50 18·1 | 14·9 | 11 56·0 |
| d. | 23 | 40 59 43·8 | 48 37 53·6 | 4 15 30·9 | 4 36 7·1 | 15·9 | 12 54·6 |
| ur. | 24 | 56 14 20·0 | 63 47 45·4 | 4 51 44·5 | 5 2 8·7 | 16·9 | 13 57·1 |
| d. | 25 | 71 17 0·7 | 78 41 6·5 | 5 7 15·4 | 5 7 8·8 | 17·9 | 15 1·9 |
| | 26 | 85 59 15·8 | 93 10 54·9 | 5 2 1·3 | 4 52 10·1 | 18·9 | 16 6·0 |
| n. | 27 | 100 [illegible] | 107 13 31·3 | 4 37 58·1 | 4 19 50·8 | 19·9 | 17 6·5 |
| n. | 28 | [illegible] | 120 48 24·2 | 3 58 16·3 | 3 33 42·6 | 20·9 | 18 1·8 |
| | | | 57 26·3 | 3 6 38·6 | 2 37 31·9 | 21·9 | 18 51·7 |
| | | | 44 3·8 | 2 6 49·8 | 1 34 57·4 | 22·9 | 19 37·2 |
| | | | [illegible] 25·5 | N.1 2 19·8 | N.0 29 19·8 | 23·9 | 20 19·5 |
| | | | | [illegible].0 3 40·6 | S.0 36 20·4 | 24·9 | 20 59·9 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 1. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 8 1 48 ·65 | N.24 31 18 ·3 | 86 ·98 |
| 1 | 8 4 8 ·47 | 24 22 36 ·4 | 88 ·23 |
| 2 | 8 6 27 ·83 | 24 13 47 ·0 | 89 ·47 |
| 3 | 8 8 46 ·75 | 24 4 50 ·2 | 90 ·68 |
| 4 | 8 11 5 ·21 | 23 55 46 ·1 | 91 ·90 |
| 5 | 8 13 23 ·22 | 23 46 34 ·7 | 93 ·08 |
| 6 | 8 15 40 ·79 | 23 37 16 ·2 | 94 ·27 |
| 7 | 8 17 57 ·90 | 23 27 50 ·6 | 95 ·42 |
| 8 | 8 20 14 ·57 | 23 18 18 ·1 | 96 ·57 |
| 9 | 8 22 30 ·79 | 23 8 38 ·7 | 97 ·70 |
| 10 | 8 24 46 ·56 | 22 58 52 ·5 | 98 ·82 |
| 11 | 8 27 1 ·88 | 22 48 59 ·6 | 99 ·90 |
| 12 | 8 29 16 ·75 | 22 39 0 ·2 | 100 ·98 |
| 13 | 8 31 31 ·19 | 22 28 54 ·3 | 102 ·05 |
| 14 | 8 33 45 ·17 | 22 18 42 ·0 | 103 ·12 |
| 15 | 8 35 58 ·72 | 22 8 23 ·3 | 104 ·13 |
| 16 | 8 38 11 ·83 | 21 57 58 ·5 | 105 ·17 |
| 17 | 8 40 24 ·49 | 21 47 27 ·5 | 106 ·18 |
| 18 | 8 42 36 ·73 | 21 36 50 ·4 | 107 ·17 |
| 19 | 8 44 48 ·52 | 21 26 7 ·4 | 108 ·15 |
| 20 | 8 46 59 ·88 | 21 15 18 ·5 | 109 ·12 |
| 21 | 8 49 10 ·81 | 21 4 23 ·8 | 110 ·07 |
| 22 | 8 51 21 ·31 | 20 53 23 ·4 | 111 ·00 |
| 23 | 8 53 31 ·38 | N.20 42 17 ·4 | 111 ·92 |
| | *WEDNESDAY* 2. | | |
| 0 | 8 55 41 ·02 | N.20 31 5 ·9 | 112 ·83 |
| 1 | 8 57 50 ·24 | 20 19 48 ·9 | 113 ·72 |
| 2 | 8 59 59 ·04 | 20 8 26 ·6 | 114 ·60 |
| 3 | 9 2 7 ·42 | 19 56 59 ·0 | 115 ·47 |
| 4 | 9 4 15 ·39 | 19 45 26 ·2 | 116 ·32 |
| 5 | 9 6 22 ·95 | 19 33 48 ·3 | 117 ·15 |
| 6 | 9 8 30 ·09 | 19 22 5 ·4 | 117 ·98 |
| 7 | 9 10 36 ·83 | 19 10 17 ·5 | 118 ·78 |
| 8 | 9 12 43 ·17 | 18 58 24 ·8 | 119 ·57 |
| 9 | 9 14 49 ·11 | 18 46 27 ·4 | 120 ·37 |
| 10 | 9 16 54 ·66 | 18 34 25 ·2 | 121 ·13 |
| 11 | 9 18 59 ·81 | 18 22 18 ·4 | 121 ·88 |
| 12 | 9 21 4 ·57 | 18 10 7 ·1 | 122 ·63 |
| 13 | 9 23 8 ·95 | 17 57 51 ·3 | 123 ·35 |
| 14 | 9 25 12 ·95 | 17 45 31 ·2 | 124 ·07 |
| 15 | 9 27 16 ·56 | 17 33 6 ·8 | 124 ·77 |
| 16 | 9 29 19 ·81 | 17 20 38 ·2 | 125 ·47 |
| 17 | 9 31 22 ·68 | 17 8 5 ·4 | 126 ·13 |
| 18 | 9 33 25 ·18 | 16 55 28 ·6 | 126 ·78 |
| 19 | 9 35 27 ·32 | 16 42 47 ·9 | 127 ·45 |
| 20 | 9 37 29 ·10 | 16 30 3 ·2 | 128 ·08 |
| 21 | 9 39 30 ·52 | 16 17 14 ·7 | 128 ·72 |
| | 9 41 31 ·60 | 16 4 22 ·4 | 129 ·32 |
| | 9 43 32 ·32 | 15 51 26 ·5 | 129 ·92 |
| | 9 45 32 ·69 | N.15 38 27 ·0 | |

| Hour. | Right Ascension. | Declination. |
|---|---|---|
| | *THURSDAY* 3. | |
| | h m s | ° ′ ″ |
| 0 | 9 45 32 ·69 | N.15 38 27 ·0 |
| 1 | 9 47 32 ·72 | 15 25 24 ·0 |
| 2 | 9 49 32 ·42 | 15 12 17 ·5 |
| 3 | 9 51 31 ·78 | 14 59 7 ·6 |
| 4 | 9 53 30 ·82 | 14 45 54 ·5 |
| 5 | 9 55 29 ·53 | 14 32 38 ·1 |
| 6 | 9 57 27 ·92 | 14 19 18 ·5 |
| 7 | 9 59 25 ·99 | 14 5 55 ·9 |
| 8 | 10 1 23 ·75 | 13 52 30 ·2 |
| 9 | 10 3 21 ·20 | 13 39 1 ·6 |
| 10 | 10 5 18 ·35 | 13 25 30 ·1 |
| 11 | 10 7 15 ·20 | 13 11 55 ·8 |
| 12 | 10 9 11 ·76 | 12 58 18 ·7 |
| 13 | 10 11 8 ·03 | 12 44 38 ·9 |
| 14 | 10 13 4 ·01 | 12 30 56 ·6 |
| 15 | 10 14 59 ·71 | 12 17 11 ·6 |
| 16 | 10 16 55 ·13 | 12 3 24 ·2 |
| 17 | 10 18 50 ·28 | 11 49 34 ·4 |
| 18 | 10 20 45 ·16 | 11 35 42 ·3 |
| 19 | 10 22 39 ·78 | 11 21 47 ·8 |
| 20 | 10 24 34 ·14 | 11 7 51 ·2 |
| 21 | 10 26 28 ·24 | 10 53 52 ·4 |
| 22 | 10 28 22 ·10 | 10 39 51 ·5 |
| 23 | 10 30 15 ·70 | N.10 25 48 ·6 |
| | *FRIDAY* 4. | |
| 0 | 10 32 9 ·07 | N.10 11 43 ·7 |
| 1 | 10 34 2 ·19 | 9 57 37 ·0 |
| 2 | 10 35 55 ·09 | 9 43 28 ·4 |
| 3 | 10 37 47 ·75 | 9 29 18 ·0 |
| 4 | 10 39 40 ·19 | 9 15 6 ·0 |
| 5 | 10 41 32 ·41 | 9 0 52 ·3 |
| 6 | 10 43 24 ·41 | 8 46 37 ·0 |
| 7 | 10 45 16 ·20 | 8 32 20 ·1 |
| 8 | 10 47 7 ·79 | 8 18 1 ·8 |
| 9 | 10 48 59 ·18 | 8 3 42 ·1 |
| 10 | 10 50 50 ·36 | 7 49 21 ·0 |
| 11 | 10 52 41 ·36 | 7 34 58 ·6 |
| 12 | 10 54 32 ·17 | 7 20 35 ·0 |
| 13 | 10 56 22 ·80 | 7 6 10 ·2 |
| 14 | 10 58 13 ·24 | 6 51 44 ·2 |
| 15 | 11 0 3 ·52 | 6 37 17 ·2 |
| 16 | 11 1 53 ·62 | 6 22 49 ·2 |
| 17 | 11 3 43 ·56 | 6 8 20 ·2 |
| 18 | 11 5 33 ·33 | 5 53 50 ·3 |
| 19 | 11 7 22 ·95 | 5 39 19 ·6 |
| 20 | 11 9 12 ·41 | 5 24 48 ·1 |
| 21 | 11 11 1 ·73 | 5 10 15 ·9 |
| 22 | 11 12 50 ·90 | 4 55 43 ·0 |
| 23 | 11 14 39 ·93 | 4 41 9 ·3 |
| 24 | 11 16 28 ·82 | N. 4 26 35 ·4 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| ght Ascension. | Declination. | Diff. Dec. for 10m. | Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|---|---|---|
| *SATURDAY* 5. | | | | *MONDAY* 7. | | |
| h m s | ° ′ ″ | ″ | | h m s | ° ′ ″ | ″ |
| 16 28 ·82 | N.4 26 35 ·4 | 145 ·77 | 0 | 12 42 19 ·91 | S. 7 6 41 ·6 | 139 ·78 |
| 18 17 ·58 | 4 12 0 ·8 | 145 ·83 | 1 | 12 44 7 ·32 | 7 20 40 ·3 | 139 ·47 |
| 20 6 ·22 | 3 57 25 ·8 | 145 ·90 | 2 | 12 45 54 ·80 | 7 34 37 ·1 | 139 ·12 |
| 21 54 ·73 | 3 42 50 ·4 | 145 ·95 | 3 | 12 47 42 ·34 | 7 48 31 ·8 | 138 ·78 |
| 23 43 ·13 | 3 28 14 ·7 | 146 ·02 | 4 | 12 49 29 ·97 | 8 2 24 ·5 | 138 ·43 |
| 25 31 ·41 | 3 13 38 ·6 | 146 ·05 | 5 | 12 51 17 ·68 | 8 16 15 ·1 | 138 ·08 |
| 27 19 ·58 | 2 59 2 ·3 | 146 ·08 | 6 | 12 53 5 ·46 | 8 30 3 ·6 | 137 ·70 |
| 29 7 ·64 | 2 44 25 ·8 | 146 ·10 | 7 | 12 54 53 ·34 | 8 43 49 ·8 | 137 ·35 |
| 30 55 ·61 | 2 29 49 ·2 | 146 ·12 | 8 | 12 56 41 ·31 | 8 57 33 ·9 | 136 ·95 |
| 32 43 ·48 | 2 15 12 ·5 | 146 ·12 | 9 | 12 58 29 ·37 | 9 11 15 ·6 | 136 ·57 |
| 34 31 ·26 | 2 0 35 ·8 | 146 ·12 | 10 | 13 0 17 ·53 | 9 24 55 ·0 | 136 ·17 |
| 36 18 ·94 | 1 45 59 ·1 | 146 ·10 | 11 | 13 2 5 ·79 | 9 38 32 ·0 | 135 ·77 |
| 38 6 ·55 | 1 31 22 ·5 | 146 ·08 | 12 | 13 3 54 ·16 | 9 52 6 ·6 | 135 ·35 |
| 39 54 ·08 | 1 16 46 ·0 | 146 ·05 | 13 | 13 5 42 ·64 | 10 5 38 ·7 | 134 ·93 |
| 41 41 ·53 | 1 2 9 ·7 | 146 ·03 | 14 | 13 7 31 ·23 | 10 19 8 ·3 | 134 ·50 |
| 43 28 ·92 | 0 47 33 ·5 | 145 ·97 | 15 | 13 9 19 ·93 | 10 32 35 ·3 | 134 ·07 |
| 45 16 ·23 | 0 32 57 ·7 | 145 ·92 | 16 | 13 11 8 ·75 | 10 45 59 ·7 | 133 ·62 |
| 47 3 ·49 | 0 18 22 ·2 | 145 ·85 | 17 | 13 12 57 ·70 | 10 59 21 ·4 | 133 ·17 |
| 48 50 ·68 | N.0 3 47 ·1 | 145 ·78 | 18 | 13 14 46 ·77 | 11 12 40 ·4 | 132 ·70 |
| 50 37 ·83 | S.0 10 47 ·6 | 145 ·70 | 19 | 13 16 35 ·97 | 11 25 56 ·6 | 132 ·23 |
| 52 24 ·92 | 0 25 21 ·8 | 145 ·60 | 20 | 13 18 25 ·31 | 11 39 10 ·0 | 131 ·77 |
| 54 11 ·97 | 0 39 55 ·4 | 145 ·52 | 21 | 13 20 14 ·78 | 11 52 20 ·6 | 131 ·27 |
| 55 58 ·97 | 0 54 28 ·5 | 145 ·40 | 22 | 13 22 4 ·39 | 12 5 28 ·2 | 130 ·78 |
| 57 45 ·94 | S.1 9 0 ·9 | 145 ·30 | 23 | 13 23 54 ·14 | S.12 18 32 ·9 | 130 ·27 |
| *SUNDAY* 6. | | | | *TUESDAY* 8. | | |
| 59 32 ·88 | S.1 23 32 ·7 | 145 ·17 | 0 | 13 25 44 ·04 | S.12 31 34 ·5 | 129 ·77 |
| 1 19 ·79 | 1 38 3 ·7 | 145 ·03 | 1 | 13 27 34 ·09 | 12 44 33 ·1 | 129 ·25 |
| 3 6 ·67 | 1 52 33 ·9 | 144 ·90 | 2 | 13 29 24 ·29 | 12 57 28 ·6 | 128 ·72 |
| 4 53 ·53 | 2 7 3 ·3 | 144 ·75 | 3 | 13 31 14 ·64 | 13 10 20 ·9 | 128 ·18 |
| 6 40 ·37 | 2 21 31 ·8 | 144 ·60 | 4 | 13 33 5 ·15 | 13 23 10 ·0 | 127 ·63 |
| 8 27 ·20 | 2 35 59 ·4 | 144 ·43 | 5 | 13 34 55 ·83 | 13 35 55 ·8 | 127 ·10 |
| 10 14 ·03 | 2 50 26 ·0 | 144 ·25 | 6 | 13 36 46 ·66 | 13 48 38 ·4 | 126 ·53 |
| 12 0 ·85 | 3 4 51 ·5 | 144 ·08 | 7 | 13 38 37 ·67 | 14 1 17 ·6 | 125 ·97 |
| 13 47 ·66 | 3 19 16 ·0 | 143 ·90 | 8 | 13 40 28 ·85 | 14 13 53 ·4 | 125 ·38 |
| 15 34 ·48 | 3 33 39 ·4 | 143 ·70 | 9 | 13 42 20 ·20 | 14 26 25 ·7 | 124 ·80 |
| 17 21 ·31 | 3 48 1 ·6 | 143 ·48 | 10 | 13 44 11 ·72 | 14 38 54 ·5 | 124 ·22 |
| 19 8 ·15 | 4 2 22 ·5 | 143 ·28 | 11 | 13 46 3 ·43 | 14 51 19 ·8 | 123 ·62 |
| 20 55 ·01 | 4 16 42 ·2 | 143 ·07 | 12 | 13 47 55 ·32 | 15 3 41 ·5 | 123 ·00 |
| 22 41 ·89 | 4 31 0 ·6 | 142 ·83 | 13 | 13 49 47 ·39 | 15 15 59 ·5 | 122 ·40 |
| 24 28 ·79 | 4 45 17 ·6 | 142 ·60 | 14 | 13 51 39 ·66 | 15 28 13 ·9 | 121 ·77 |
| 26 15 ·71 | 4 59 33 ·2 | 142 ·35 | 15 | 13 53 32 ·11 | 15 40 24 ·5 | 121 ·13 |
| 28 2 ·67 | 5 13 47 ·3 | 142 ·10 | 16 | 13 55 24 ·75 | 15 52 31 ·3 | 120 ·48 |
| 29 49 ·66 | 5 27 59 ·9 | 141 ·85 | 17 | 13 57 17 ·60 | 16 4 34 ·2 | 119 ·83 |
| 31 36 ·70 | 5 42 11 ·0 | 141 ·57 | 18 | 13 59 10 ·64 | 16 16 33 ·2 | 119 ·18 |
| 33 23 ·77 | 5 56 20 ·4 | 141 ·28 | 19 | 14 1 3 ·88 | 16 28 28 ·3 | 118 ·52 |
| 35 10 ·89 | 6 10 28 ·1 | 141 ·02 | 20 | 14 2 57 ·33 | 16 40 19 ·4 | 117 ·83 |
| 36 58 ·06 | 6 24 34 ·2 | 140 ·72 | 21 | 14 4 50 ·99 | 16 52 6 ·4 | 117 ·17 |
| 38 45 ·28 | 6 38 38 ·5 | 140 ·42 | 22 | 14 6 44 ·85 | 17 3 49 ·4 | 116 ·45 |
| 40 32 ·57 | 6 52 41 ·0 | 140 ·10 | 23 | 14 8 38 ·93 | 17 15 28 ·1 | 115 ·77 |
| 42 19 ·91 | S.7 6 41 ·6 | | 24 | 14 10 33 ·22 | S.17 27 2 ·7 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *WEDNESDAY* 9. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 14 10 33 ·22 | S.17 27 2 ·7 | 115 ·05 |
| 1 | 14 12 27 ·73 | 17 38 33 ·0 | 114 ·33 |
| 2 | 14 14 22 ·45 | 17 49 59 ·0 | 113 ·60 |
| 3 | 14 16 17 ·40 | 18 1 20 ·6 | 112 ·88 |
| 4 | 14 18 12 ·57 | 18 12 37 ·9 | 112 ·13 |
| 5 | 14 20 7 ·96 | 18 23 50 ·7 | 111 ·37 |
| 6 | 14 22 3 ·59 | 18 34 58 ·9 | 110 ·63 |
| 7 | 14 23 59 ·44 | 18 46 2 ·7 | 109 ·85 |
| 8 | 14 25 55 ·53 | 18 57 1 ·8 | 109 ·08 |
| 9 | 14 27 51 ·84 | 19 7 56 ·3 | 108 ·30 |
| 10 | 14 29 48 ·40 | 19 18 46 ·1 | 107 ·50 |
| 11 | 14 31 45 ·19 | 19 29 31 ·1 | 106 ·70 |
| 12 | 14 33 42 ·22 | 19 40 11 ·3 | 105 ·90 |
| 13 | 14 35 39 ·49 | 19 50 46 ·7 | 105 ·08 |
| 14 | 14 37 37 ·00 | 20 1 17 ·2 | 104 ·25 |
| 15 | 14 39 34 ·76 | 20 11 42 ·7 | 103 ·43 |
| 16 | 14 41 32 ·76 | 20 22 3 ·3 | 102 ·58 |
| 17 | 14 43 31 ·01 | 20 32 18 ·8 | 101 ·72 |
| 18 | 14 45 29 ·51 | 20 42 29 ·1 | 100 ·87 |
| 19 | 14 47 28 ·26 | 20 52 34 ·3 | 100 ·00 |
| 20 | 14 49 27 ·27 | 21 2 34 ·3 | 99 ·12 |
| 21 | 14 51 26 ·52 | 21 12 29 ·0 | 98 ·23 |
| 22 | 14 53 26 ·03 | 21 22 18 ·4 | 97 ·35 |
| 23 | 14 55 25 ·80 | S.21 32 2 ·5 | 96 ·43 |
| | *THURSDAY* 10. | | |
| 0 | 14 57 25 ·82 | S.21 41 41 ·1 | 95 ·52 |
| 1 | 14 59 26 ·10 | 21 51 14 ·2 | 94 ·60 |
| 2 | 15 1 26 ·63 | 22 0 41 ·8 | 93 ·67 |
| 3 | 15 3 27 ·43 | 22 10 3 ·8 | 92 ·73 |
| 4 | 15 5 28 ·49 | 22 19 20 ·2 | 91 ·80 |
| 5 | 15 7 29 ·81 | 22 28 31 ·0 | 90 ·83 |
| 6 | 15 9 31 ·38 | 22 37 36 ·0 | 89 ·87 |
| 7 | 15 11 33 ·23 | 22 46 35 ·2 | 88 ·90 |
| 8 | 15 13 35 ·33 | 22 55 28 ·6 | 87 ·93 |
| 9 | 15 15 37 ·70 | 23 4 16 ·2 | 86 ·93 |
| 10 | 15 17 40 ·33 | 23 12 57 ·8 | 85 ·95 |
| 11 | 15 19 43 ·22 | 23 21 33 ·5 | 84 ·93 |
| 12 | 15 21 46 ·38 | 23 30 3 ·1 | 83 ·93 |
| 13 | 15 23 49 ·80 | 23 38 26 ·7 | 82 ·92 |
| 14 | 15 25 53 ·49 | 23 46 44 ·2 | 81 ·88 |
| 15 | 15 27 57 ·44 | 23 54 55 ·5 | 80 ·85 |
| 16 | 15 30 1 ·66 | 24 3 0 ·6 | 79 ·82 |
| 17 | 15 32 6 ·14 | 24 10 59 ·5 | 78 ·75 |
| 18 | 15 34 10 ·89 | 24 18 52 ·0 | 77 ·68 |
| 19 | 15 36 15 ·89 | 24 26 38 ·1 | 76 ·62 |
| 20 | 15 38 21 ·16 | 24 34 17 ·8 | 75 ·55 |
| 21 | 15 40 26 ·70 | 24 41 51 ·1 | 74 ·47 |
| 22 | 15 42 32 ·49 | 24 49 17 ·9 | 73 ·35 |
| 23 | 15 44 38 ·54 | 24 56 38 ·0 | 72 ·27 |
| 24 | 15 46 44 ·86 | S.25 3 51 ·6 | |

| Hour. | Right Ascension. | Declination. |
|---|---|---|
| | *FRIDAY* 11. | |
| | h m s | ° ′ ″ |
| 0 | 15 46 44 ·86 | S.25 3 51 ·6 |
| 1 | 15 48 51 ·44 | 25 10 58 ·5 |
| 2 | 15 50 58 ·27 | 25 17 58 ·6 |
| 3 | 15 53 5 ·36 | 25 24 52 ·1 |
| 4 | 15 55 12 ·71 | 25 31 38 ·7 |
| 5 | 15 57 20 ·32 | 25 38 18 ·4 |
| 6 | 15 59 28 ·18 | 25 44 51 ·3 |
| 7 | 16 1 36 ·29 | 25 51 17 ·2 |
| 8 | 16 3 44 ·65 | 25 57 36 ·1 |
| 9 | 16 5 53 ·27 | 26 3 48 ·0 |
| 10 | 16 8 2 ·12 | 26 9 52 ·8 |
| 11 | 16 10 11 ·23 | 26 15 50 ·5 |
| 12 | 16 12 20 ·58 | 26 21 41 ·0 |
| 13 | 16 14 30 ·18 | 26 27 24 ·3 |
| 14 | 16 16 40 ·01 | 26 33 0 ·4 |
| 15 | 16 18 50 ·08 | 26 38 29 ·2 |
| 16 | 16 21 0 ·39 | 26 43 50 ·6 |
| 17 | 16 23 10 ·94 | 26 49 4 ·6 |
| 18 | 16 25 21 ·71 | 26 54 11 ·2 |
| 19 | 16 27 32 ·72 | 26 59 10 ·4 |
| 20 | 16 29 43 ·95 | 27 4 2 ·0 |
| 21 | 16 31 55 ·41 | 27 8 46 ·1 |
| 22 | 16 34 7 ·08 | 27 13 22 ·6 |
| 23 | 16 36 18 ·98 | S.27 17 51 ·4 |
| | *SATURDAY* 12. | |
| 0 | 16 38 31 ·09 | S.27 22 12 ·6 |
| 1 | 16 40 43 ·41 | 27 26 26 ·1 |
| 2 | 16 42 55 ·95 | 27 30 31 ·8 |
| 3 | 16 45 8 ·69 | 27 34 29 ·7 |
| 4 | 16 47 21 ·63 | 27 38 19 ·8 |
| 5 | 16 49 34 ·77 | 27 42 2 ·0 |
| 6 | 16 51 48 ·11 | 27 45 36 ·3 |
| 7 | 16 54 1 ·64 | 27 49 2 ·7 |
| 8 | 16 56 15 ·37 | 27 52 21 ·1 |
| 9 | 16 58 29 ·28 | 27 55 31 ·5 |
| 10 | 17 0 43 ·37 | 27 58 33 ·9 |
| 11 | 17 2 57 ·64 | 28 1 28 ·2 |
| 12 | 17 5 12 ·09 | 28 4 14 ·4 |
| 13 | 17 7 26 ·71 | 28 6 52 ·5 |
| 14 | 17 9 41 ·50 | 28 9 22 ·4 |
| 15 | 17 11 56 ·45 | 28 11 44 ·1 |
| 16 | 17 14 11 ·56 | 28 13 57 ·5 |
| 17 | 17 16 26 ·83 | 28 16 2 ·7 |
| 18 | 17 18 42 ·25 | 28 17 59 ·7 |
| 19 | 17 20 57 ·82 | 28 19 48 ·3 |
| 20 | 17 23 13 ·53 | 28 21 28 ·6 |
| 21 | 17 25 29 ·38 | 28 23 0 ·5 |
| 22 | 17 27 45 ·37 | 28 24 24 ·1 |
| 23 | 17 30 1 ·49 | 28 25 39 ·2 |
| 24 | 17 32 17 ·73 | S.28 26 45 ·9 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SUNDAY* 13. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 17 32 17 ·73 | S. 28 26 45 ·9 | 9 ·70 |
| 1 | 17 34 34 ·09 | 28 27 44 ·1 | 8 ·30 |
| 2 | 17 36 50 ·58 | 28 28 33 ·9 | 6 ·88 |
| 3 | 17 39 7 ·17 | 28 29 15 ·2 | 5 ·45 |
| 4 | 17 41 23 ·87 | 28 29 47 ·9 | 4 ·03 |
| 5 | 17 43 40 ·67 | 28 30 12 ·1 | 2 ·60 |
| 6 | 17 45 57 ·57 | 28 30 27 ·7 | 1 ·18 |
| 7 | 17 48 14 ·57 | 28 30 34 ·8 | 0 ·27 |
| 8 | 17 50 31 ·65 | 28 30 33 ·2 | 1 ·70 |
| 9 | 17 52 48 ·82 | 28 30 23 ·0 | 3 ·13 |
| 10 | 17 55 6 ·07 | 28 30 4 ·2 | 4 ·57 |
| 11 | 17 57 23 ·39 | 28 29 36 ·8 | 6 ·02 |
| 12 | 17 59 40 ·79 | 28 29 0 ·7 | 7 ·47 |
| 13 | 18 1 58 ·25 | 28 28 15 ·9 | 8 ·92 |
| 14 | 18 4 15 ·77 | 28 27 22 ·4 | 10 ·35 |
| 15 | 18 6 33 ·35 | 28 26 20 ·3 | 11 ·82 |
| 16 | 18 8 50 ·98 | 28 25 9 ·4 | 13 ·27 |
| 17 | 18 11 8 ·66 | 28 23 49 ·8 | 14 ·72 |
| 18 | 18 13 26 ·38 | 28 22 21 ·5 | 16 ·17 |
| 19 | 18 15 44 ·13 | 28 20 44 ·5 | 17 ·63 |
| 20 | 18 18 1 ·92 | 28 18 58 ·7 | 19 ·08 |
| 21 | 18 20 19 ·74 | 28 17 4 ·2 | 20 ·53 |
| 22 | 18 22 37 ·58 | 28 15 1 ·0 | 22 ·00 |
| 23 | 18 24 55 ·44 | S. 28 12 49 ·0 | 23 ·47 |
| | *MONDAY* 14. | | |
| 0 | 18 27 13 ·31 | S. 28 10 28 ·2 | 24 ·92 |
| 1 | 18 29 31 ·19 | 28 7 58 ·7 | 26 ·37 |
| 2 | 18 31 49 ·08 | 28 5 20 ·5 | 27 ·83 |
| 3 | 18 34 6 ·96 | 28 2 33 ·5 | 29 ·30 |
| 4 | 18 36 24 ·85 | 27 59 37 ·7 | 30 ·75 |
| 5 | 18 38 42 ·72 | 27 56 33 ·2 | 32 ·22 |
| 6 | 18 41 0 ·58 | 27 53 19 ·9 | 33 ·67 |
| 7 | 18 43 18 ·42 | 27 49 57 ·9 | 35 ·12 |
| 8 | 18 45 36 ·24 | 27 46 27 ·2 | 36 ·58 |
| 9 | 18 47 54 ·03 | 27 42 47 ·7 | 38 ·03 |
| 10 | 18 50 11 ·79 | 27 38 59 ·5 | 39 ·48 |
| 11 | 18 52 29 ·52 | 27 35 2 ·6 | 40 ·95 |
| 12 | 18 54 47 ·21 | 27 30 56 ·9 | 42 ·40 |
| 13 | 18 57 4 ·86 | 27 26 42 ·5 | 43 ·83 |
| 14 | 18 59 22 ·45 | 27 22 19 ·5 | 45 ·30 |
| 15 | 19 1 40 ·00 | 27 17 47 ·7 | 46 ·73 |
| 16 | 19 3 57 ·49 | 27 13 7 ·3 | 48 ·18 |
| 17 | 19 6 14 ·92 | 27 8 18 ·2 | 49 ·63 |
| 18 | 19 8 32 ·29 | 27 3 20 ·4 | 51 ·07 |
| 19 | 19 10 49 ·59 | 26 58 14 ·0 | 52 ·50 |
| 20 | 19 13 6 ·82 | 26 52 59 ·0 | 53 ·95 |
| 21 | 19 15 23 ·98 | 26 47 35 ·3 | 55 ·37 |
| 22 | 19 17 41 ·06 | 26 42 3 ·1 | 56 ·80 |
| 23 | 19 19 58 ·06 | 26 36 22 ·3 | 58 ·23 |
| 24 | 19 22 14 ·98 | S. 26 30 32 ·9 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 15. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 19 22 14 ·98 | S. 26 30 32 ·9 | 59 ·65 |
| 1 | 19 24 31 ·81 | 26 24 35 ·0 | 61 ·08 |
| 2 | 19 26 48 ·54 | 26 18 28 ·5 | 62 ·48 |
| 3 | 19 29 5 ·19 | 26 12 13 ·6 | 63 ·90 |
| 4 | 19 31 21 ·73 | 26 5 50 ·2 | 65 ·32 |
| 5 | 19 33 38 ·18 | 25 59 18 ·3 | 66 ·73 |
| 6 | 19 35 54 ·53 | 25 52 37 ·9 | 68 ·12 |
| 7 | 19 38 10 ·76 | 25 45 49 ·2 | 69 ·53 |
| 8 | 19 40 26 ·89 | 25 38 52 ·0 | 70 ·92 |
| 9 | 19 42 42 ·91 | 25 31 46 ·5 | 72 ·30 |
| 10 | 19 44 58 ·81 | 25 24 32 ·7 | 73 ·70 |
| 11 | 19 47 14 ·60 | 25 17 10 ·5 | 75 ·07 |
| 12 | 19 49 30 ·28 | 25 9 40 ·1 | 76 ·45 |
| 13 | 19 51 45 ·84 | 25 2 1 ·4 | 77 ·82 |
| 14 | 19 54 1 ·27 | 24 54 14 ·5 | 79 ·20 |
| 15 | 19 56 16 ·57 | 24 46 19 ·3 | 80 ·55 |
| 16 | 19 58 31 ·75 | 24 38 16 ·0 | 81 ·90 |
| 17 | 20 0 46 ·80 | 24 30 4 ·6 | 83 ·27 |
| 18 | 20 3 1 ·72 | 24 21 45 ·0 | 84 ·60 |
| 19 | 20 5 16 ·50 | 24 13 17 ·4 | 85 ·95 |
| 20 | 20 7 31 ·16 | 24 4 41 ·7 | 87 ·28 |
| 21 | 20 9 45 ·67 | 23 55 58 ·0 | 88 ·60 |
| 22 | 20 12 0 ·05 | 23 47 6 ·4 | 89 ·93 |
| 23 | 20 14 14 ·30 | S. 23 38 6 ·8 | 91 ·25 |
| | *WEDNESDAY* 16. | | |
| 0 | 20 16 28 ·40 | S. 23 28 59 ·3 | 92 ·57 |
| 1 | 20 18 42 ·37 | 23 19 43 ·9 | 93 ·85 |
| 2 | 20 20 56 ·21 | 23 10 20 ·8 | 95 ·17 |
| 3 | 20 23 9 ·90 | 23 0 49 ·8 | 96 ·47 |
| 4 | 20 25 23 ·45 | 22 51 11 ·0 | 97 ·73 |
| 5 | 20 27 36 ·85 | 22 41 24 ·6 | 99 ·03 |
| 6 | 20 29 50 ·12 | 22 31 30 ·4 | 100 ·28 |
| 7 | 20 32 3 ·23 | 22 21 28 ·7 | 101 ·57 |
| 8 | 20 34 16 ·21 | 22 11 19 ·3 | 102 ·82 |
| 9 | 20 36 29 ·03 | 22 1 2 ·4 | 104 ·08 |
| 10 | 20 38 41 ·72 | 21 50 37 ·9 | 105 ·32 |
| 11 | 20 40 54 ·26 | 21 40 6 ·0 | 106 ·55 |
| 12 | 20 43 6 ·65 | 21 29 26 ·7 | 107 ·78 |
| 13 | 20 45 18 ·90 | 21 18 40 ·0 | 109 ·02 |
| 14 | 20 47 31 ·01 | 21 7 45 ·9 | 110 ·23 |
| 15 | 20 49 42 ·98 | 20 56 44 ·5 | 111 ·43 |
| 16 | 20 51 54 ·80 | 20 45 35 ·9 | 112 ·63 |
| 17 | 20 54 6 ·48 | 20 34 20 ·1 | 113 ·83 |
| 18 | 20 56 18 ·02 | 20 22 57 ·1 | 115 ·02 |
| 19 | 20 58 29 ·42 | 20 11 27 ·0 | 116 ·18 |
| 20 | 21 0 40 ·68 | 19 59 49 ·9 | 117 ·37 |
| 21 | 21 2 51 ·80 | 19 48 5 ·7 | 118 ·52 |
| 22 | 21 5 2 ·78 | 19 36 14 ·6 | 119 ·68 |
| 23 | 21 7 13 ·62 | 19 24 16 ·5 | 120 ·82 |
| 24 | 21 9 24 ·33 | S. 19 12 11 ·6 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *THURSDAY* 17. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 21 9 24·33 | S. 19 12 11·6 | 121·95 |
| 1 | 21 11 34·91 | 18 59 59·9 | 123·08 |
| 2 | 21 13 45·35 | 18 47 41·4 | 124·22 |
| 3 | 21 15 55·66 | 18 35 16·1 | 125·30 |
| 4 | 21 18 5·84 | 18 22 44·3 | 126·42 |
| 5 | 21 20 15·89 | 18 10 5·8 | 127·52 |
| 6 | 21 22 25·81 | 17 57 20·7 | 128·58 |
| 7 | 21 24 35·61 | 17 44 29·2 | 129·67 |
| 8 | 21 26 45·29 | 17 31 31·2 | 130·73 |
| 9 | 21 28 54·84 | 17 18 26·8 | 131·78 |
| 10 | 21 31 4·27 | 17 5 16·1 | 132·85 |
| 11 | 21 33 13·59 | 16 51 59·0 | 133·87 |
| 12 | 21 35 22·79 | 16 38 35·8 | 134·90 |
| 13 | 21 37 31·88 | 16 25 6·4 | 135·92 |
| 14 | 21 39 40·85 | 16 11 30·9 | 136·93 |
| 15 | 21 41 49·72 | 15 57 49·3 | 137·93 |
| 16 | 21 43 58·49 | 15 44 1·7 | 138·92 |
| 17 | 21 46 7·15 | 15 30 8·2 | 139·88 |
| 18 | 21 48 15·71 | 15 16 8·9 | 140·87 |
| 19 | 21 50 24·18 | 15 2 3·7 | 141·83 |
| 20 | 21 52 32·55 | 14 47 52·7 | 142·77 |
| 21 | 21 54 40·83 | 14 33 36·1 | 143·70 |
| 22 | 21 56 49·02 | 14 19 13·9 | 144·63 |
| 23 | 21 58 57·13 | S. 14 4 46·1 | 145·55 |
| | *FRIDAY* 18. | | |
| 0 | 22 1 5·15 | S. 13 50 12·8 | 146·45 |
| 1 | 22 3 13·09 | 13 35 34·1 | 147·35 |
| 2 | 22 5 20·97 | 13 20 50·0 | 148·23 |
| 3 | 22 7 28·76 | 13 6 0·6 | 149·10 |
| 4 | 22 9 36·49 | 12 51 6·0 | 149·97 |
| 5 | 22 11 44·16 | 12 36 6·2 | 150·80 |
| 6 | 22 13 51·76 | 12 21 1·4 | 151·65 |
| 7 | 22 15 59·30 | 12 5 51·5 | 152·48 |
| 8 | 22 18 6·79 | 11 50 36·6 | 153·28 |
| 9 | 22 20 14·23 | 11 35 16·9 | 154·10 |
| 10 | 22 22 21·62 | 11 19 52·3 | 154·88 |
| 11 | 22 24 28·96 | 11 4 23·0 | 155·67 |
| 12 | 22 26 36·27 | 10 48 49·0 | 156·43 |
| 13 | 22 28 43·54 | 10 33 10·4 | 157·18 |
| 14 | 22 30 50·78 | 10 17 27·3 | 157·93 |
| 15 | 22 32 57·99 | 10 1 39·7 | 158·65 |
| 16 | 22 35 5·18 | 9 45 47·8 | 159·38 |
| 17 | 22 37 12·35 | 9 29 51·5 | 160·08 |
| 18 | 22 39 19·50 | 9 13 51·0 | 160·77 |
| 19 | 22 41 26·64 | 8 57 46·4 | 161·45 |
| 20 | 22 43 33·77 | 8 41 37·7 | 162·12 |
| 21 | 22 45 40·90 | 8 25 25·0 | 162·77 |
| 22 | 22 47 48·04 | 8 9 8·4 | 163·42 |
| 23 | 22 49 55·17 | 7 52 47·9 | 164·03 |
| 24 | 22 52 2·32 | S. 7 36 23·7 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SATURDAY* 19. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 22 52 2·32 | S. 7 36 23·7 | 16 |
| 1 | 22 54 9·48 | 7 19 55·8 | 16 |
| 2 | 22 56 16·66 | 7 3 24·4 | 16 |
| 3 | 22 58 23·86 | 6 46 49·4 | 16 |
| 4 | 23 0 31·10 | 6 30 11·0 | 16 |
| 5 | 23 2 38·36 | 6 13 29·2 | 16 |
| 6 | 23 4 45·67 | 5 56 44·2 | 16 |
| 7 | 23 6 53·01 | 5 39 56·1 | 16 |
| 8 | 23 9 0·41 | 5 23 4·9 | 16 |
| 9 | 23 11 7·85 | 5 6 10·6 | 16 |
| 10 | 23 13 15·36 | 4 49 13·5 | 16 |
| 11 | 23 15 22·92 | 4 32 13·6 | 17 |
| 12 | 23 17 30·55 | 4 15 10·9 | 17 |
| 13 | 23 19 38·25 | 3 58 5·6 | 17 |
| 14 | 23 21 46·03 | 3 40 57·8 | 17 |
| 15 | 23 23 53·89 | 3 23 47·5 | 17 |
| 16 | 23 26 1·84 | 3 6 34·9 | 17 |
| 17 | 23 28 9·88 | 2 49 20·0 | 17 |
| 18 | 23 30 18·02 | 2 32 3·0 | 17 |
| 19 | 23 32 26·25 | 2 14 43·9 | 17 |
| 20 | 23 34 34·60 | 1 57 22·9 | 17 |
| 21 | 23 36 43·05 | 1 40 0·0 | 17 |
| 22 | 23 38 51·62 | 1 22 35·3 | 17 |
| 23 | 23 41 0·32 | S. 1 5 9·0 | 17 |
| | *SUNDAY* 20. | | |
| 0 | 23 43 9·14 | S. 0 47 41·1 | 17 |
| 1 | 23 45 18·09 | 0 30 11·8 | 17 |
| 2 | 23 47 27·19 | S. 0 12 41·1 | 17 |
| 3 | 23 49 36·42 | N. 0 4 50·9 | 17 |
| 4 | 23 51 45·80 | 0 22 24·0 | 17 |
| 5 | 23 53 55·33 | 0 39 58·1 | 17 |
| 6 | 23 56 5·03 | 0 57 33·1 | 17 |
| 7 | 23 58 14·89 | 1 15 9·0 | 17 |
| 8 | 0 0 24·91 | 1 32 45·6 | 17 |
| 9 | 0 2 35·11 | 1 50 22·8 | 17 |
| 10 | 0 4 45·49 | 2 8 0·4 | 17 |
| 11 | 0 6 56·06 | 2 25 38·5 | 17 |
| 12 | 0 9 6·81 | 2 43 16·8 | 17 |
| 13 | 0 11 17·76 | 3 0 55·3 | 17 |
| 14 | 0 13 28·91 | 3 18 33·8 | 17 |
| 15 | 0 15 40·26 | 3 36 12·2 | 17 |
| 16 | 0 17 51·82 | 3 53 50·4 | 17 |
| 17 | 0 20 3·60 | 4 11 28·4 | 17 |
| 18 | 0 22 15·60 | 4 29 5·9 | 17 |
| 19 | 0 24 27·83 | 4 46 42·8 | 17 |
| 20 | 0 26 40·29 | 5 4 19·1 | 17 |
| 21 | 0 28 52·98 | 5 21 54·7 | 17 |
| 22 | 0 31 5·92 | 5 39 29·3 | 17 |
| 23 | 0 33 19·11 | 5 57 2·9 | 17 |
| 24 | 0 35 32·54 | N. 6 14 35·3 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *MONDAY* 21. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 0 35 32 ·54 | N. 6 14 35 ·3 | 175 ·20 |
| 1 | 0 37 46 ·24 | 6 32 6 ·5 | 174 ·97 |
| 2 | 0 40 0 ·19 | 6 49 36 ·3 | 174 ·70 |
| 3 | 0 42 14 ·42 | 7 7 4 ·5 | 174 ·43 |
| 4 | 0 44 28 ·91 | 7 24 31 ·1 | 174 ·13 |
| 5 | 0 46 43 ·69 | 7 41 55 ·9 | 173 ·83 |
| 6 | 0 48 58 ·74 | 7 59 18 ·9 | 173 ·47 |
| 7 | 0 51 14 ·08 | 8 16 39 ·7 | 173 ·13 |
| 8 | 0 53 29 ·72 | 8 33 58 ·5 | 172 ·73 |
| 9 | 0 55 45 ·64 | 8 51 14 ·9 | 172 ·33 |
| 10 | 0 58 1 ·87 | 9 8 28 ·9 | 171 ·90 |
| 11 | 1 0 18 ·40 | 9 25 40 ·3 | 171 ·47 |
| 12 | 1 2 35 ·24 | 9 42 49 ·1 | 171 ·00 |
| 13 | 1 4 52 ·39 | 9 59 55 ·1 | 170 ·50 |
| 14 | 1 7 9 ·86 | 10 16 58 ·1 | 169 ·98 |
| 15 | 1 9 27 ·66 | 10 33 58 ·0 | 169 ·43 |
| 16 | 1 11 45 ·78 | 10 50 54 ·6 | 168 ·90 |
| 17 | 1 14 4 ·23 | 11 7 48 ·0 | 168 ·30 |
| 18 | 1 16 23 ·02 | 11 24 37 ·8 | 167 ·68 |
| 19 | 1 18 42 ·15 | 11 41 23 ·9 | 167 ·08 |
| 20 | 1 21 1 ·62 | 11 58 6 ·4 | 166 ·42 |
| 21 | 1 23 21 ·44 | 12 14 44 ·9 | 165 ·73 |
| 22 | 1 25 41 ·61 | 12 31 19 ·3 | 165 ·05 |
| 23 | 1 28 2 ·13 | N.12 47 49 ·6 | 164 ·32 |
| | *TUESDAY* 22. | | |
| 0 | 1 30 23 ·02 | N.13 4 15 ·5 | 163 ·58 |
| 1 | 1 32 44 ·27 | 13 20 37 ·0 | 162 ·80 |
| 2 | 1 35 5 ·89 | 13 36 53 ·8 | 162 ·02 |
| 3 | 1 37 27 ·87 | 13 53 5 ·9 | 161 ·22 |
| 4 | 1 39 50 ·23 | 14 9 13 ·2 | 160 ·37 |
| 5 | 1 42 12 ·97 | 14 25 15 ·4 | 159 ·50 |
| 6 | 1 44 36 ·08 | 14 41 12 ·4 | 158 ·63 |
| 7 | 1 46 59 ·57 | 14 57 4 ·2 | 157 ·72 |
| 8 | 1 49 23 ·44 | 15 12 50 ·5 | 156 ·78 |
| 9 | 1 51 47 ·70 | 15 28 31 ·2 | 155 ·85 |
| 10 | 1 54 12 ·35 | 15 44 6 ·3 | 154 ·85 |
| 11 | 1 56 37 ·38 | 15 59 35 ·4 | 153 ·87 |
| 12 | 1 59 2 ·81 | 16 14 58 ·6 | 152 ·85 |
| 13 | 2 1 28 ·63 | 16 30 15 ·7 | 151 ·80 |
| 14 | 2 3 54 ·84 | 16 45 26 ·5 | 150 ·73 |
| 15 | 2 6 21 ·45 | 17 0 30 ·9 | 149 ·63 |
| 16 | 2 8 48 ·46 | 17 15 28 ·7 | 148 ·52 |
| 17 | 2 11 15 ·87 | 17 30 19 ·8 | 147 ·38 |
| 18 | 2 13 43 ·68 | 17 45 4 ·1 | 146 ·22 |
| 19 | 2 16 11 ·89 | 17 59 41 ·4 | 145 ·03 |
| 20 | 2 18 40 ·50 | 18 14 11 ·6 | 143 ·82 |
| 21 | 2 21 9 ·51 | 18 28 34 ·5 | 142 ·58 |
| 22 | 2 23 38 ·93 | 18 42 50 ·0 | 141 ·33 |
| 23 | 2 26 8 ·75 | 18 56 58 ·0 | 140 ·07 |
| 24 | 2 28 38 ·97 | N.19 10 58 ·4 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *WEDNESDAY* 23. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 2 28 38 ·97 | N.19 10 58 ·4 | 138 ·75 |
| 1 | 2 31 9 ·60 | 19 24 50 ·9 | 137 ·43 |
| 2 | 2 33 40 ·63 | 19 38 35 ·5 | 136 ·08 |
| 3 | 2 36 12 ·06 | 19 52 12 ·0 | 134 ·73 |
| 4 | 2 38 43 ·90 | 20 5 40 ·4 | 133 ·32 |
| 5 | 2 41 16 ·13 | 20 19 0 ·3 | 131 ·92 |
| 6 | 2 43 48 ·76 | 20 32 11 ·8 | 130 ·48 |
| 7 | 2 46 21 ·79 | 20 45 14 ·7 | 129 ·03 |
| 8 | 2 48 55 ·21 | 20 58 8 ·9 | 127 ·55 |
| 9 | 2 51 29 ·03 | 21 10 54 ·2 | 126 ·07 |
| 10 | 2 54 3 ·23 | 21 23 30 ·6 | 124 ·53 |
| 11 | 2 56 37 ·82 | 21 35 57 ·8 | 123 ·00 |
| 12 | 2 59 12 ·80 | 21 48 15 ·8 | 121 ·45 |
| 13 | 3 1 48 ·16 | 22 0 24 ·5 | 119 ·87 |
| 14 | 3 4 23 ·90 | 22 12 23 ·7 | 118 ·25 |
| 15 | 3 7 0 ·01 | 22 24 13 ·2 | 116 ·65 |
| 16 | 3 9 36 ·49 | 22 35 53 ·1 | 115 ·00 |
| 17 | 3 12 13 ·35 | 22 47 23 ·1 | 113 ·35 |
| 18 | 3 14 50 ·56 | 22 58 43 ·2 | 111 ·67 |
| 19 | 3 17 28 ·13 | 23 9 53 ·2 | 109 ·98 |
| 20 | 3 20 6 ·06 | 23 20 53 ·1 | 108 ·25 |
| 21 | 3 22 44 ·34 | 23 31 42 ·6 | 106 ·52 |
| 22 | 3 25 22 ·96 | 23 42 21 ·7 | 104 ·78 |
| 23 | 3 28 1 ·91 | N.23 52 50 ·4 | 103 ·00 |
| | *THURSDAY* 24. | | |
| 0 | 3 30 41 ·20 | N.24 3 8 ·4 | 101 ·22 |
| 1 | 3 33 20 ·82 | 24 13 15 ·7 | 99 ·42 |
| 2 | 3 36 0 ·75 | 24 23 12 ·2 | 97 ·58 |
| 3 | 3 38 41 ·00 | 24 32 57 ·7 | 95 ·77 |
| 4 | 3 41 21 ·56 | 24 42 32 ·3 | 93 ·90 |
| 5 | 3 44 2 ·42 | 24 51 55 ·7 | 92 ·05 |
| 6 | 3 46 43 ·56 | 25 1 8 ·0 | 90 ·17 |
| 7 | 3 49 24 ·99 | 25 10 9 ·0 | 88 ·27 |
| 8 | 3 52 6 ·70 | 25 18 58 ·6 | 86 ·35 |
| 9 | 3 54 48 ·68 | 25 27 36 ·7 | 84 ·45 |
| 10 | 3 57 30 ·92 | 25 36 3 ·4 | 82 ·50 |
| 11 | 4 0 13 ·41 | 25 44 18 ·4 | 80 ·55 |
| 12 | 4 2 56 ·14 | 25 52 21 ·7 | 78 ·60 |
| 13 | 4 5 39 ·11 | 26 0 13 ·3 | 76 ·62 |
| 14 | 4 8 22 ·30 | 26 7 53 ·0 | 74 ·63 |
| 15 | 4 11 5 ·71 | 26 15 20 ·8 | 72 ·65 |
| 16 | 4 13 49 ·33 | 26 22 36 ·7 | 70 ·65 |
| 17 | 4 16 33 ·15 | 26 29 40 ·6 | 68 ·62 |
| 18 | 4 19 17 ·15 | 26 36 32 ·3 | 66 ·60 |
| 19 | 4 22 1 ·33 | 26 43 11 ·9 | 64 ·58 |
| 20 | 4 24 45 ·67 | 26 49 39 ·4 | 62 ·53 |
| 21 | 4 27 30 ·17 | 26 55 54 ·6 | 60 ·48 |
| 22 | 4 30 14 ·81 | 27 1 57 ·5 | 58 ·42 |
| 23 | 4 32 59 ·59 | 27 7 48 ·0 | 56 ·37 |
| 24 | 4 35 44 ·50 | N.27 13 26 ·2 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *FRIDAY* 25. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 4 35 44 ·50 | N.27 13 26 ·2 | 54 ·28 |
| 1 | 4 38 29 ·52 | 27 18 51 ·9 | 52 ·22 |
| 2 | 4 41 14 ·64 | 27 24 5 ·2 | 50 ·13 |
| 3 | 4 43 59 ·85 | 27 29 6 ·0 | 48 ·05 |
| 4 | 4 46 45 ·14 | 27 33 54 ·3 | 45 ·97 |
| 5 | 4 49 30 ·49 | 27 38 30 ·1 | 43 ·87 |
| 6 | 4 52 15 ·90 | 27 42 53 ·3 | 41 ·78 |
| 7 | 4 55 1 ·35 | 27 47 4 ·0 | 39 ·67 |
| 8 | 4 57 46 ·83 | 27 51 2 ·0 | 37 ·58 |
| 9 | 5 0 32 ·34 | 27 54 47 ·5 | 35 ·47 |
| 10 | 5 3 17 ·85 | 27 58 20 ·3 | 33 ·38 |
| 11 | 5 6 3 ·35 | 28 1 40 ·6 | 31 ·27 |
| 12 | 5 8 48 ·84 | 28 4 48 ·2 | 29 ·17 |
| 13 | 5 11 34 ·30 | 28 7 43 ·2 | 27 ·07 |
| 14 | 5 14 19 ·71 | 28 10 25 ·6 | 24 ·95 |
| 15 | 5 17 5 ·08 | 28 12 55 ·3 | 22 ·87 |
| 16 | 5 19 50 ·37 | 28 15 12 ·5 | 20 ·77 |
| 17 | 5 22 35 ·59 | 28 17 17 ·1 | 18 ·68 |
| 18 | 5 25 20 ·72 | 28 19 9 ·2 | 16 ·57 |
| 19 | 5 28 5 ·74 | 28 20 48 ·6 | 14 ·50 |
| 20 | 5 30 50 ·66 | 28 22 15 ·6 | 12 ·42 |
| 21 | 5 33 35 ·44 | 28 23 30 ·1 | 10 ·32 |
| 22 | 5 36 20 ·09 | 28 24 32 ·0 | 8 ·27 |
| 23 | 5 39 4 ·59 | N.28 25 21 ·6 | 6 ·18 |
| | *SATURDAY* 26. | | |
| 0 | 5 41 48 ·93 | N.28 25 58 ·7 | 4 ·12 |
| 1 | 5 44 33 ·09 | 28 26 23 ·4 | 2 ·07 |
| 2 | 5 47 17 ·07 | 28 26 35 ·8 | 0 ·02 |
| 3 | 5 50 0 ·86 | 28 26 35 ·9 | 2 ·02 |
| 4 | 5 52 44 ·44 | 28 26 23 ·8 | 4 ·05 |
| 5 | 5 55 27 ·79 | 28 25 59 ·5 | 6 ·08 |
| 6 | 5 58 10 ·92 | 28 25 23 ·0 | 8 ·10 |
| 7 | 6 0 53 ·81 | 28 24 34 ·4 | 10 ·10 |
| 8 | 6 3 36 ·45 | 28 23 33 ·8 | 12 ·08 |
| 9 | 6 6 18 ·82 | 28 22 21 ·3 | 14 ·08 |
| 10 | 6 9 0 ·92 | 28 20 56 ·8 | 16 ·07 |
| 11 | 6 11 42 ·73 | 28 19 20 ·4 | 18 ·02 |
| 12 | 6 14 24 ·26 | 28 17 32 ·3 | 19 ·98 |
| 13 | 6 17 5 ·48 | 28 15 32 ·4 | 21 ·92 |
| 14 | 6 19 46 ·39 | 28 13 20 ·9 | 23 ·83 |
| 15 | 6 22 26 ·97 | 28 10 57 ·9 | 25 ·77 |
| 16 | 6 25 7 ·22 | 28 8 23 ·3 | 27 ·67 |
| 17 | 6 27 47 ·13 | 28 5 37 ·3 | 29 ·57 |
| 18 | 6 30 26 ·68 | 28 2 39 ·9 | 31 ·43 |
| 19 | 6 33 5 ·88 | 27 59 31 ·3 | 33 ·30 |
| 20 | 6 35 44 ·71 | 27 56 11 ·5 | 35 ·15 |
| 21 | 6 38 23 ·17 | 27 52 40 ·6 | 36 ·98 |
| 22 | 6 41 1 ·24 | 27 48 58 ·7 | 38 ·82 |
| 23 | 6 43 38 ·92 | 27 45 5 ·8 | 40 ·62 |
| 24 | 6 46 16 ·20 | N.27 41 2 ·1 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SUNDAY* 27. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 6 46 16 ·20 | N.27 41 2 ·1 | 42 ·42 |
| 1 | 6 48 53 ·07 | 27 36 47 ·6 | 44 ·38 |
| 2 | 6 51 29 ·53 | 27 32 22 ·5 | 45 ·35 |
| 3 | 6 54 5 ·56 | 27 27 46 ·8 | 47 ·68 |
| 4 | 6 56 41 ·17 | 27 23 0 ·7 | 49 ·42 |
| 5 | 6 59 16 ·34 | 27 18 4 ·1 | 51 ·13 |
| 6 | 7 1 51 ·08 | 27 12 57 ·3 | 52 ·83 |
| 7 | 7 4 25 ·37 | 27 7 40 ·3 | 54 ·52 |
| 8 | 7 6 59 ·20 | 27 2 13 ·2 | 56 ·18 |
| 9 | 7 9 32 ·58 | 26 56 36 ·1 | 57 ·83 |
| 10 | 7 12 5 ·51 | 26 50 49 ·1 | 59 ·45 |
| 11 | 7 14 37 ·96 | 26 44 52 ·4 | 61 ·08 |
| 12 | 7 17 9 ·94 | 26 38 45 ·9 | 62 ·67 |
| 13 | 7 19 41 ·45 | 26 32 29 ·9 | 64 ·25 |
| 14 | 7 22 12 ·47 | 26 26 4 ·4 | 65 ·82 |
| 15 | 7 24 43 ·01 | 26 19 29 ·5 | 67 ·35 |
| 16 | 7 27 13 ·07 | 26 12 45 ·4 | 68 ·88 |
| 17 | 7 29 42 ·64 | 26 5 52 ·1 | 70 ·40 |
| 18 | 7 32 11 ·70 | 25 58 49 ·7 | 71 ·88 |
| 19 | 7 34 40 ·28 | 25 51 38 ·4 | 73 ·37 |
| 20 | 7 37 8 ·35 | 25 44 18 ·2 | 74 ·82 |
| 21 | 7 39 35 ·91 | 25 36 49 ·3 | 76 ·25 |
| 22 | 7 42 2 ·98 | 25 29 11 ·8 | 77 ·68 |
| 23 | 7 44 29 ·53 | N.25 21 25 ·7 | 79 ·08 |
| | *MONDAY* 28. | | |
| 0 | 7 46 55 ·58 | N.25 13 31 ·2 | 80 ·47 |
| 1 | 7 49 21 ·11 | 25 5 28 ·4 | 81 ·83 |
| 2 | 7 51 46 ·13 | 24 57 17 ·4 | 83 ·18 |
| 3 | 7 54 10 ·64 | 24 48 58 ·3 | 84 ·53 |
| 4 | 7 56 34 ·64 | 24 40 31 ·1 | 85 ·83 |
| 5 | 7 58 58 ·12 | 24 31 56 ·1 | 87 ·12 |
| 6 | 8 1 21 ·08 | 24 23 13 ·4 | 88 ·42 |
| 7 | 8 3 43 ·53 | 24 14 22 ·9 | 89 ·67 |
| 8 | 8 6 5 ·46 | 24 5 24 ·9 | 90 ·92 |
| 9 | 8 8 26 ·88 | 23 56 19 ·4 | 92 ·15 |
| 10 | 8 10 47 ·79 | 23 47 6 ·5 | 93 ·35 |
| 11 | 8 13 8 ·17 | 23 37 46 ·4 | 94 ·55 |
| 12 | 8 15 28 ·05 | 23 28 19 ·1 | 95 ·72 |
| 13 | 8 17 47 ·42 | 23 18 44 ·8 | 96 ·87 |
| 14 | 8 20 6 ·27 | 23 9 3 ·6 | 98 ·02 |
| 15 | 8 22 24 ·61 | 22 59 15 ·5 | 99 ·13 |
| 16 | 8 24 42 ·44 | 22 49 20 ·7 | 100 ·25 |
| 17 | 8 26 59 ·77 | 22 39 19 ·2 | 101 ·35 |
| 18 | 8 29 16 ·58 | 22 29 11 ·2 | 102 ·40 |
| 19 | 8 31 32 ·90 | 22 18 56 ·8 | |
| 20 | 8 33 48 ·71 | 22 8 36 ·[illegible] | |
| 21 | 8 36 4 ·02 | 21 58 9 ·[illegible] | |
| 22 | 8 38 18 ·83 | 21 47 36 | |
| 23 | 8 40 33 ·14 | 21 36 56 | |
| 24 | 8 42 46 ·96 | N.21 26 11 ·[illegible] | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 29. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 8 42 46 ·96 | N.21 26 11 ·8 | 108 ·48 |
| 1 | 8 45 0 ·29 | 21 15 20 ·9 | 109 ·43 |
| 2 | 8 47 13 ·13 | 21 4 24 ·3 | 110 ·38 |
| 3 | 8 49 25 ·48 | 20 53 22 ·0 | 111 ·30 |
| 4 | 8 51 37 ·35 | 20 42 14 ·2 | 112 ·22 |
| 5 | 8 53 48 ·73 | 20 31 0 ·9 | 113 ·10 |
| 6 | 8 55 59 ·64 | 20 19 42 ·3 | 113 ·98 |
| 7 | 8 58 10 ·08 | 20 8 18 ·4 | 114 ·85 |
| 8 | 9 0 20 ·05 | 19 56 49 ·3 | 115 ·68 |
| 9 | 9 2 29 ·55 | 19 45 15 ·2 | 116 ·52 |
| 10 | 9 4 38 ·59 | 19 33 36 ·1 | 117 ·35 |
| 11 | 9 6 47 ·17 | 19 21 52 ·0 | 118 ·13 |
| 12 | 9 8 55 ·29 | 19 10 3 ·2 | 118 ·92 |
| 13 | 9 11 2 ·96 | 18 58 9 ·7 | 119 ·70 |
| 14 | 9 13 10 ·19 | 18 46 11 ·5 | 120 ·47 |
| 15 | 9 15 16 ·97 | 18 34 8 ·7 | 121 ·20 |
| 16 | 9 17 23 ·31 | 18 22 1 ·5 | 121 ·92 |
| 17 | 9 19 29 ·21 | 18 9 50 ·0 | 122 ·65 |
| 18 | 9 21 34 ·68 | 17 57 34 ·1 | 123 ·33 |
| 19 | 9 23 39 ·72 | 17 45 14 ·1 | 124 ·03 |
| 20 | 9 25 44 ·34 | 17 32 49 ·9 | 124 ·72 |
| 21 | 9 27 48 ·54 | 17 20 21 ·6 | 125 ·37 |
| 22 | 9 29 52 ·33 | 17 7 49 ·4 | 126 ·00 |
| 23 | 9 31 55 ·70 | N.16 55 13 ·4 | 126 ·65 |
| | *WEDNESDAY* 30. | | |
| 0 | 9 33 58 ·67 | N.16 42 33 ·5 | 127 ·27 |
| 1 | 9 36 1 ·24 | 16 29 49 ·9 | 127 ·87 |
| 2 | 9 38 3 ·41 | 16 17 2 ·7 | 128 ·47 |
| 3 | 9 40 5 ·19 | 16 4 11 ·9 | 129 ·05 |
| 4 | 9 42 6 ·58 | 15 51 17 ·6 | 129 ·63 |
| 5 | 9 44 7 ·58 | 15 38 19 ·8 | 130 ·17 |
| 6 | 9 46 8 ·21 | 15 25 18 ·8 | 130 ·72 |
| 7 | 9 48 8 ·47 | 15 12 14 ·5 | 131 ·25 |
| 8 | 9 50 8 ·36 | 14 59 7 ·0 | 131 ·77 |
| 9 | 9 52 7 ·88 | 14 45 56 ·4 | 132 ·28 |
| 10 | 9 54 7 ·05 | 14 32 42 ·7 | 132 ·77 |
| 11 | 9 56 5 ·86 | 14 19 26 ·1 | 133 ·25 |
| 12 | 9 58 4 ·32 | 14 6 6 ·6 | 133 ·72 |
| 13 | 10 0 2 ·44 | 13 52 44 ·3 | 134 ·18 |
| 14 | 10 2 0 ·22 | 13 39 19 ·2 | 134 ·63 |
| 15 | 10 3 57 ·67 | 13 25 51 ·4 | 135 ·08 |
| 16 | 10 5 54 ·78 | 13 12 20 ·9 | 135 ·48 |
| 17 | 10 7 51 ·57 | 12 58 48 ·0 | 135 ·92 |
| 18 | 10 9 48 ·05 | 12 45 12 ·5 | 136 ·30 |
| 19 | 10 11 44 ·20 | 12 31 34 ·7 | 136 ·72 |
| 20 | 10 13 | 4 | 137 ·08 |
| 21 | 10 | | 45 |
| 22 | 10 | | |
| 23 | 10 | | |
| 24 | 10 21 | | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *THURSDAY* 31. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 10 21 20 ·43 | N.11 22 51 ·3 | 138 ·50 |
| 1 | 10 23 14 ·80 | 11 9 0 ·3 | 138 ·83 |
| 2 | 10 25 8 ·89 | 10 55 7 ·3 | 139 ·15 |
| 3 | 10 27 2 ·71 | 10 41 12 ·4 | 139 ·47 |
| 4 | 10 28 56 ·25 | 10 27 15 ·6 | 139 ·75 |
| 5 | 10 30 49 ·53 | 10 13 17 ·1 | 140 ·05 |
| 6 | 10 32 42 ·55 | 9 59 16 ·8 | 140 ·32 |
| 7 | 10 34 35 ·32 | 9 45 14 ·9 | 140 ·60 |
| 8 | 10 36 27 ·83 | 9 31 11 ·3 | 140 ·85 |
| 9 | 10 38 20 ·10 | 9 17 6 ·2 | 141 ·12 |
| 10 | 10 40 12 ·14 | 9 2 59 ·5 | 141 ·33 |
| 11 | 10 42 3 ·93 | 8 48 51 ·5 | 141 ·58 |
| 12 | 10 43 55 ·50 | 8 34 42 ·0 | 141 ·80 |
| 13 | 10 45 46 ·85 | 8 20 31 ·2 | 142 ·02 |
| 14 | 10 47 37 ·97 | 8 6 19 ·1 | 142 ·22 |
| 15 | 10 49 28 ·89 | 7 52 5 ·8 | 142 ·40 |
| 16 | 10 51 19 ·59 | 7 37 51 ·4 | 142 ·60 |
| 17 | 10 53 10 ·09 | 7 23 35 ·8 | 142 ·77 |
| 18 | 10 55 0 ·38 | 7 9 19 ·2 | 142 ·93 |
| 19 | 10 56 50 ·49 | 6 55 1 ·6 | 143 ·10 |
| 20 | 10 58 40 ·40 | 6 40 43 ·0 | 143 ·25 |
| 21 | 11 0 30 ·13 | 6 26 23 ·5 | 143 ·38 |
| 22 | 11 2 19 ·68 | 6 12 3 ·2 | 143 ·53 |
| 23 | 11 4 9 ·06 | N. 5 57 42 ·1 | 143 ·68 |
| | *FRIDAY, NOV.* 1. | | |
| 0 | 11 5 58 ·26 | N. 5 43 20 ·2 | |

### PHASES OF THE MOON.

| | d h m |
|---|---|
| ● New Moon - - - | 7 2 13 ·4 |
| ☽ *First Quarter* - - | 15 6 24 ·7 |
| ○ Full Moon - - - | 22 4 31 ·9 |
| ☾ *Last Quarter* - - | 28 20 0 ·2 |

| | d h |
|---|---|
| ☾ Apogee - - - - - - - - | 9 22 |
| ☾ Perigee - - - - - - - - | 22 19 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | Noon. | P. L. of diff. | III h. | P. L. of diff. | VI h. | P. L. of diff. | IX h. |
|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ |
| 1 | α Arietis W. | 81 33 17 | 2626 | 83 11 36 | 2638 | 84 49 40 | 2649 | 86 27 2 |
| | Aldebaran W. | 50 47 32 | 2727 | 52 23 36 | 2734 | 53 59 31 | 2741 | 55 35 1 |
| | Regulus E. | 30 14 31 | 2606 | 28 35 44 | 2618 | 26 57 13 | 2630 | 25 18 5 |
| | Sun E. | 70 7 57 | 2942 | 68 36 31 | 2954 | 67 5 21 | 2967 | 65 34 2 |
| 2 | Aldebaran W. | 63 31 45 | 2786 | 65 6 31 | 2794 | 66 41 7 | 2802 | 68 15 3 |
| | Pollux W. | 19 50 35 | 2723 | 21 26 45 | 2729 | 23 2 47 | 2736 | 24 38 3 |
| | Sun E. | 58 3 48 | 3040 | 56 34 25 | 3052 | 55 5 17 | 3063 | 53 36 2 |
| 3 | Aldebaran W. | 76 5 1 | 2851 | 77 38 23 | 2859 | 79 11 34 | 2868 | 80 44 3 |
| | Pollux W. | 32 35 28 | 2784 | 34 10 17 | 2792 | 35 44 56 | 2800 | 37 19 2 |
| | Sun E. | 46 15 12 | 3128 | 44 47 37 | 3139 | 43 20 15 | 3149 | 41 53 5 |
| 4 | Aldebaran W. | 88 27 1 | 2916 | 89 59 0 | 2924 | 91 30 48 | 2932 | 93 2 2 |
| | Pollux W. | 45 9 8 | 2848 | 46 42 34 | 2856 | 48 15 50 | 2863 | 49 48 5 |
| | Regulus W. | 8 19 17 | 2877 | 9 52 5 | 2876 | 11 24 55 | 2877 | 12 57 4 |
| | Sun E. | 34 40 15 | 3209 | 33 14 17 | 3219 | 31 48 30 | 3229 | 30 22 5 |
| 9 | Saturn E. | 30 46 11 | 3219 | 29 20 25 | 3234 | 27 54 56 | 3250 | 26 29 4 |
| | Antares E. | 31 4 44 | 3068 | 29 35 55 | 3070 | 28 7 9 | 3073 | 26 38 2 |
| | α Aquilæ E. | 86 1 48 | 3836 | 84 47 23 | 3843 | 83 33 5 | 3849 | 82 18 5 |
| 10 | Sun W. | 32 0 5 | 3475 | 33 20 57 | 3476 | 34 41 48 | 3475 | 36 2 4 |
| | α Aquilæ E. | 76 10 8 | 3907 | 74 56 55 | 3919 | 73 43 54 | 3931 | 72 31 |
| | Fomalhaut E. | 100 45 18 | 3355 | 99 22 10 | 3353 | 97 59 0 | 3351 | 96 35 4 |
| 11 | Sun W. | 42 47 12 | 3469 | 44 8 11 | 3466 | 45 29 13 | 3464 | 46 50 1 |
| | α Aquilæ E. | 66 31 1 | 4033 | 65 19 54 | 4054 | 64 9 8 | 4077 | 62 58 4 |
| | Fomalhaut E. | 89 39 28 | 3344 | 88 16 8 | 3343 | 86 52 46 | 3342 | 85 29 2 |
| 12 | Sun W. | 53 36 33 | 3441 | 54 58 3 | 3437 | 56 19 38 | 3431 | 57 41 1 |
| | α Aquilæ E. | 57 13 16 | 4257 | 56 5 43 | 4294 | 54 58 45 | 4335 | 53 52 2 |
| | Fomalhaut E. | 78 32 6 | 3335 | 77 8 35 | 3333 | 75 45 2 | 3332 | 74 21 2 |
| | α Pegasi E. | 100 30 52 | 3302 | 99 6 43 | 3296 | 97 42 27 | 3289 | 96 18 |
| 13 | Sun W. | 64 31 34 | 3390 | 65 54 2 | 3381 | 67 16 40 | 3372 | 68 39 2 |
| | Saturn W. | 18 8 30 | 3345 | 19 31 50 | 3296 | 20 56 6 | 3254 | 22 21 1 |
| | Mars W. | 16 39 20 | 3406 | 18 1 30 | 3379 | 19 24 10 | 3357 | 20 47 1 |
| | Antares W. | 16 19 4 | 3012 | 17 49 2 | 3004 | 19 19 10 | 2996 | 20 49 2 |
| | Fomalhaut E. | 67 23 20 | 3327 | 65 59 40 | 3326 | 64 35 59 | 3327 | 63 12 1 |
| | α Pegasi E. | 89 14 3 | 3248 | 87 48 50 | 3240 | 86 23 28 | 3233 | 84 57 5 |
| 14 | Sun W. | 75 36 22 | 3310 | 77 0 22 | 3297 | 78 24 37 | 3284 | 79 49 |
| | Saturn W. | 29 35 48 | 3087 | 31 4 13 | 3066 | 32 33 4 | 3046 | 34 2 2 |
| | Antares W. | 28 23 55 | 2936 | 29 55 28 | 2926 | 31 27 14 | 2914 | 32 59 1 |
| | Mars W. | 27 48 14 | 3250 | 29 13 24 | 3233 | 30 38 54 | 3218 | 32 4 4 |
| | Fomalhaut E. | 56 14 17 | 3338 | 54 50 49 | 3342 | 53 27 26 | 3347 | 52 4 |
| | α Pegasi E. | 77 48 12 | 3187 | 76 21 47 | 3179 | 74 55 13 | 3171 | 73 28 2 |
| 15 | Sun W. | 86 55 32 | 3201 | 88 21 40 | 3185 | 89 48 7 | 3169 | 91 14 5 |
| | Saturn W. | 41 34 33 | 2935 | 43 6 8 | 2916 | 44 38 7 | 2898 | 46 10 2 |
| | Antares W. | 40 43 22 | 2836 | 42 17 3 | 2821 | 43 51 3 | 2807 | 45 25 2 |
| | Mars W. | 39 18 25 | 3122 | 40 46 8 | 3105 | 42 14 12 | 3088 | 43 42 3 |
| | Fomalhaut E. | 45 10 16 | 3414 | 43 48 15 | 3434 | 42 26 37 | 3457 | 41 5 2 |
| | α Pegasi E. | 66 12 32 | 3126 | 64 44 54 | 3119 | 63 17 8 | 3113 | 61 49 1 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Midnight. | P. L. of diff. | XV h. | P. L. of diff. | XVIII h. | P. L. of diff. | XXI h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 1 | α Arietis | W. | 88 5 2 | 2672 | 89 42 20 | 2683 | 91 19 23 | 2694 | 92 56 11 | 2705 |
| | Aldebaran | W. | 57 10 55 | 2755 | 58 46 22 | 2762 | 60 21 40 | 2769 | 61 56 48 | 2778 |
| | Regulus | E. | 23 41 2 | 2655 | 22 3 21 | 2666 | 20 25 56 | 2678 | 18 48 47 | 2691 |
| | Sun | E. | 64 3 49 | 2992 | 62 33 26 | 3005 | 61 3 19 | 3016 | 59 33 26 | 3028 |
| 2 | Aldebaran | W. | 69 49 48 | 2818 | 71 23 52 | 2827 | 72 57 45 | 2835 | 74 31 28 | 2842 |
| | Pollux | W. | 26 14 22 | 2751 | 27 49 54 | 2759 | 29 25 16 | 2767 | 31 0 27 | 2775 |
| | Sun | E. | 52 7 42 | 3085 | 50 39 14 | 3096 | 49 11 0 | 3108 | 47 43 0 | 3118 |
| 3 | Aldebaran | W. | 82 17 24 | 2884 | 83 50 4 | 2892 | 85 22 33 | 2900 | 86 54 52 | 2908 |
| | Pollux | W. | 38 53 41 | 2816 | 40 27 48 | 2824 | 42 1 45 | 2832 | 43 35 31 | 2839 |
| | Sun | E. | 40 26 7 | 3169 | 38 59 21 | 3180 | 37 32 48 | 3189 | 36 6 26 | 3199 |
| 4 | Aldebaran | W. | 94 33 54 | 2947 | 96 5 13 | 2956 | 97 36 21 | 2963 | 99 7 20 | 2972 |
| | Pollux | W. | 51 21 53 | 2877 | 52 54 41 | 2885 | 54 27 19 | 2892 | 55 59 48 | 2898 |
| | Regulus | W. | 14 30 27 | 2885 | 16 3 5 | 2890 | 17 35 37 | 2895 | 19 8 2 | 2902 |
| | Sun | E. | 28 57 31 | 3248 | 27 32 18 | 3258 | 26 7 18 | 3268 | 24 42 29 | 3278 |
| 9 | Saturn | E. | 25 4 56 | 3288 | 23 40 31 | 3312 | 22 16 34 | 3341 | 20 53 10 | 3375 |
| | Antares | E. | 25 9 46 | 3078 | 23 41 9 | 3079 | 22 12 34 | 3081 | 20 44 1 | 3083 |
| | α Aquilæ | E. | 81 4 49 | 3865 | 79 50 54 | 3875 | 78 37 9 | 3884 | 77 23 33 | 3895 |
| 10 | Sun | W. | 37 23 32 | 3474 | 38 44 25 | 3473 | 40 5 19 | 3472 | 41 26 15 | 3471 |
| | α Aquilæ | E. | 71 18 32 | 3961 | 70 6 14 | 3977 | 68 54 12 | 3994 | 67 42 27 | 4014 |
| | Fomalhaut | E. | 95 12 35 | 3349 | 93 49 20 | 3348 | 92 26 4 | 3347 | 91 2 47 | 3345 |
| 11 | Sun | W. | 48 11 24 | 3458 | 49 32 35 | 3454 | 50 53 50 | 3451 | 52 15 9 | 3447 |
| | α Aquilæ | E. | 61 48 44 | 4128 | 60 39 9 | 4156 | 59 30 1 | 4187 | 58 21 23 | 4220 |
| | Fomalhaut | E. | 84 5 58 | 3339 | 82 42 32 | 3338 | 81 19 5 | 3337 | 79 55 36 | 3336 |
| 12 | Sun | W. | 59 3 7 | 3420 | 60 25 1 | 3412 | 61 47 4 | 3405 | 63 9 15 | 3398 |
| | α Aquilæ | E. | 52 46 47 | 4430 | 51 41 53 | 4484 | 50 37 47 | 4542 | 49 34 32 | 4606 |
| | Fomalhaut | E. | 72 57 53 | 3330 | 71 34 16 | 3329 | 70 10 38 | 3328 | 68 46 59 | 3328 |
| | α Pegasi | E. | 94 53 31 | 3276 | 93 28 52 | 3269 | 92 4 4 | 3261 | 90 39 7 | 3255 |
| 13 | Sun | W. | 70 2 28 | 3353 | 71 25 38 | 3343 | 72 49 0 | 3332 | 74 12 34 | 3320 |
| | Saturn | W. | 23 46 58 | 3187 | 25 13 23 | 3159 | 26 40 21 | 3134 | 28 7 50 | 3110 |
| | Mars | W. | 22 10 46 | 3316 | 23 34 39 | 3299 | 24 58 52 | 3282 | 26 23 24 | 3267 |
| | Antares | W. | 22 19 57 | 2977 | 23 50 38 | 2968 | 25 21 31 | 2958 | 26 52 37 | 2948 |
| | Fomalhaut | E. | 61 48 40 | 3328 | 60 25 1 | 3330 | 59 1 24 | 3332 | 57 37 49 | 3334 |
| | α Pegasi | E. | 83 32 19 | 3218 | 82 6 31 | 3210 | 80 40 34 | 3203 | 79 14 28 | 3194 |
| 14 | Sun | W. | 81 13 51 | 3259 | 82 38 51 | 3244 | 84 4 8 | 3230 | 85 29 41 | 3215 |
| | Saturn | W. | 35 31 59 | 3007 | 37 2 3 | 2989 | 38 32 30 | 2970 | 40 3 20 | 2952 |
| | Antares | W. | 34 31 32 | 2890 | 36 4 4 | 2877 | 37 36 53 | 2863 | 39 9 59 | 2850 |
| | Mars | W. | 33 30 48 | 3187 | 34 57 13 | 3170 | 36 23 58 | 3154 | 37 51 2 | 3138 |
| | Fomalhaut | E. | 50 40 59 | 3362 | 49 17 59 | 3372 | 47 55 11 | 3384 | 46 32 36 | 3397 |
| | α Pegasi | E. | 72 1 36 | 3156 | 70 34 34 | 3148 | 69 7 22 | 3141 | 67 40 2 | 3133 |
| 15 | Sun | W. | 92 41 58 | 3136 | 94 9 24 | 3119 | 95 37 10 | 3103 | 97 5 16 | 3084 |
| | Saturn | W. | 47 43 14 | 2862 | 49 16 22 | 2843 | 50 49 54 | 2825 | 52 23 50 | 2807 |
| | Antares | W. | 47 0 1 | 2776 | 48 35 0 | 2760 | 50 10 20 | 2744 | 51 46 1 | 2729 |
| | Mars | W. | 45 11 21 | | [illegible] 10 28 | 3036 | 48 9 56 | 3018 | 49 39 46 | 3000 |
| | Fomalhaut | E. | 39 44 [illegible] | | [illegible] | [illegible] | 37 5 15 | 3599 | 35 46 40 | 3652 |
| | α Pegasi | E. | 60 [illegible] | | [illegible] | [illegible] | [illegible] 24 53 | 3093 | 55 56 35 | 3090 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III h. | P.L. of diff. | VI h. | P.L. of diff. | IX h. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ |
| 15 | α Arietis | E. | 107 31 37 | 2861 | 105 58 28 | 2846 | 104 25 0 | 2832 | 102 51 13 |
| 16 | Sun | W. | 98 33 45 | 3067 | 100 2 35 | 3048 | 101 31 49 | 3030 | 103 1 25 |
| | Saturn | W. | 53 58 9 | 2788 | 55 32 52 | 2768 | 57 8 2 | 2750 | 58 43 36 |
| | Antares | W. | 53 22 3 | 2711 | 54 58 28 | 2694 | 56 35 16 | 2677 | 58 12 27 |
| | Mars | W. | 51 9 59 | 2981 | 52 40 35 | 2962 | 54 11 35 | 2944 | 55 42 58 |
| | α Pegasi | E. | 54 28 13 | 3088 | 52 59 49 | 3088 | 51 31 25 | 3088 | 50 3 1 |
| | α Arietis | E. | 94 57 8 | 2735 | 93 21 14 | 2717 | 91 44 57 | 2700 | 90 8 17 |
| 17 | Sun | W. | 110 35 22 | 2913 | 112 7 24 | 2894 | 113 39 51 | 2873 | 115 12 44 |
| | Saturn | W. | 66 47 47 | 2635 | 68 25 56 | 2615 | 70 4 31 | 2595 | 71 43 33 |
| | Antares | W. | 66 24 24 | 2568 | 68 4 3 | 2549 | 69 44 8 | 2530 | 71 24 39 |
| | Mars | W. | 63 26 5 | 2826 | 64 59 59 | 2806 | 66 34 19 | 2786 | 68 9 5 |
| | α Pegasi | E. | 42 42 44 | 3141 | 41 15 24 | 3162 | 39 48 29 | 3188 | 38 22 5 |
| | α Arietis | E. | 81 58 59 | 2592 | 80 19 53 | 2574 | 78 40 22 | 2555 | 77 0 2[illegible] |
| 18 | Sun | W. | 123 3 41 | 2752 | 124 39 12 | 2732 | 126 15 9 | 2712 | 127 51 3[illegible] |
| | Saturn | W. | 80 5 33 | 2477 | 81 47 19 | 2457 | 83 29 33 | 2438 | 85 12 1[illegible] |
| | Antares | W. | 79 53 53 | 2416 | 81 37 5 | 2396 | 83 20 45 | 2377 | 85 4 5[illegible] |
| | Mars | W. | 76 9 40 | 2663 | 77 47 9 | 2643 | 79 25 5 | 2623 | 81 3 2[illegible] |
| | α Arietis | E. | 68 34 11 | 2443 | 66 51 38 | 2424 | 65 8 38 | 2407 | 63 25 1[illegible] |
| | Aldebaran | E. | 99 50 19 | 2492 | 98 8 55 | 2472 | 96 27 3 | 2453 | 94 44 4[illegible] |
| 19 | Saturn | W. | 93 52 28 | 2325 | 95 37 51 | 2307 | 97 23 40 | 2290 | 99 9 5[illegible] |
| | Antares | W. | 93 52 16 | 2266 | 95 39 6 | 2249 | 97 26 21 | 2231 | 99 14 [illegible] |
| | Mars | W. | 89 22 16 | 2505 | 91 3 22 | 2486 | 92 44 55 | 2467 | 94 26 5[illegible] |
| | α Arietis | E. | 54 41 41 | 2302 | 52 55 45 | 2286 | 51 9 25 | 2270 | 49 22 4[illegible] |
| | Aldebaran | E. | 86 6 20 | 2341 | 84 21 20 | 2324 | 82 35 55 | 2307 | 80 50 [illegible] |
| 20 | Saturn | W. | 108 7 9 | 2195 | 109 55 44 | 2181 | 111 44 40 | 2168 | 113 33 5[illegible] |
| | Mars | W. | 103 2 55 | 2366 | 104 47 18 | 2351 | 106 32 4 | 2336 | 108 17 1[illegible] |
| | α Aquilæ | W. | 60 32 30 | 3187 | 61 58 55 | 3138 | 63 26 19 | 3090 | 64 54 4[illegible] |
| | Fomalhaut | W. | 32 21 24 | 3192 | 33 47 43 | 3079 | 35 16 18 | 2981 | 36 46 5[illegible] |
| | α Arietis | E. | 40 23 55 | 2192 | 38 35 16 | 2182 | 36 46 22 | 2174 | 34 57 1[illegible] |
| | Aldebaran | E. | 71 55 10 | 2217 | 70 7 7 | 2204 | 68 18 45 | 2192 | 66 30 [illegible] |
| 21 | α Aquilæ | W. | 72 28 36 | 2877 | 74 1 25 | 2851 | 75 34 47 | 2828 | 77 8 3[illegible] |
| | Fomalhaut | W. | 44 43 59 | 2586 | 46 23 13 | 2543 | 48 3 26 | 2505 | 49 44 3[illegible] |
| | α Pegasi | W. | 25 34 40 | 3681 | 26 51 47 | 3466 | 28 12 49 | 3288 | 29 37 1[illegible] |
| | α Arietis | E. | 25 50 11 | 2169 | 24 0 57 | 2181 | 22 12 1 | 2200 | 20 23 3[illegible] |
| | Aldebaran | E. | 57 23 4 | 2140 | 55 33 6 | 2135 | 53 43 0 | 2132 | 51 52 4[illegible] |
| | Pollux | E. | 100 2 48 | 2036 | 98 10 10 | 2026 | 96 17 16 | 2017 | 94 24 [illegible] |
| 22 | α Aquilæ | W. | 85 3 38 | 2739 | 86 39 26 | 2732 | 88 15 23 | 2728 | 89 51 2[illegible] |
| | Fomalhaut | W. | 58 20 59 | 2342 | 60 5 57 | 2325 | 61 51 20 | 2309 | 63 37 [illegible] |
| | α Pegasi | W. | 37 16 56 | 2665 | 38 54 23 | 2607 | 40 33 9 | 2556 | 42 13 [illegible] |
| | Aldebaran | E. | 42 41 57 | 2146 | 40 52 8 | 2155 | 39 2 33 | 2168 | 37 13 1[illegible] |
| | Pollux | E. | 84 55 37 | 1978 | 83 1 28 | 1975 | 81 7 14 | 1972 | 79 12 5[illegible] |
| 23 | α Aquilæ | W. | 97 51 27 | 2747 | 99 27 4 | 2759 | 101 2 25 | 2773 | 102 37 2[illegible] |
| | Fomalhaut | W. | 72 29 50 | 2258 | 74 16 52 | 2255 | 76 3 58 | 2254 | 77 51 [illegible] |
| | α Pegasi | W. | 50 45 35 | 2368 | 52 29 56 | 2351 | 54 14 42 | 2337 | 55 59 4[illegible] |
| | Aldebaran | E. | 28 15 23 | 2344 | 26 30 27 | 2401 | 24 46 53 | 2470 | 23 4 5[illegible] |
| | Pollux | E. | 69 40 59 | 1972 | 67 46 40 | 1975 | 65 52 26 | 1978 | 63 58 1[illegible] |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month | Star's Name and Position. | | Midnight. | P. L. of diff. | XV h. | P. L. of diff. | XVIII h. | P. L. of diff. | XXI h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 15 | α Arietis | E. | 101 17 6 | 2800 | 99 42 38 | 2785 | 98 7 50 | 2768 | 96 32 40 | 2751 |
| 16 | Sun | W. | 104 31 24 | 2992 | 106 1 47 | 2973 | 107 32 34 | 2953 | 109 3 46 | 2934 |
| | Saturn | W. | 60 19 35 | 2712 | 61 55 59 | 2693 | 63 32 49 | 2673 | 65 10 5 | 2654 |
| | Antares | W. | 59 50 1 | 2641 | 61 28 0 | 2623 | 63 6 23 | 2605 | 64 45 11 | 2587 |
| | Mars | W. | 57 14 45 | 2905 | 58 46 57 | 2885 | 60 19 35 | 2866 | 61 52 37 | 2846 |
| | α Pegasi | E. | 48 34 41 | 3096 | 47 6 26 | 3102 | 45 38 19 | 3112 | 44 10 24 | 3124 |
| | α Arietis | E. | 88 31 14 | 2665 | 86 53 47 | 2647 | 85 15 56 | 2629 | 83 37 40 | 2610 |
| 17 | Sun | W. | 116 46 3 | 2833 | 118 19 48 | 2813 | 119 53 59 | 2792 | 121 28 37 | 2772 |
| | Saturn | W. | 73 23 3 | 2556 | 75 2 59 | 2535 | 76 43 23 | 2516 | 78 24 14 | 2496 |
| | Antares | W. | 73 5 36 | 2493 | 74 46 59 | 2473 | 76 28 50 | 2454 | 78 11 8 | 2435 |
| | Mars | W. | 69 44 18 | 2745 | 71 19 58 | 2725 | 72 56 5 | 2705 | 74 32 39 | 2684 |
| | α Pegasi | E. | 36 56 18 | 3257 | 35 31 16 | 3306 | 34 7 11 | 3363 | 32 44 12 | 3433 |
| | α Arietis | E. | 75 20 2 | 2518 | 73 39 14 | 2499 | 71 57 59 | 2480 | 70 16 18 | 2462 |
| 18 | Sun | W. | 129 28 24 | 2673 | 131 5 40 | 2653 | 132 43 23 | 2634 | 134 21 32 | 2615 |
| | Saturn | W. | 86 55 23 | 2399 | 88 38 59 | 2380 | 90 23 2 | 2362 | 92 7 32 | 2344 |
| | Antares | W. | 86 49 26 | 2340 | 88 34 28 | 2321 | 90 19 57 | 2302 | 92 5 53 | 2284 |
| | Mars | W. | 82 42 20 | 2583 | 84 21 38 | 2563 | 86 1 24 | 2543 | 87 41 37 | 2525 |
| | α Arietis | E. | 61 41 21 | 2371 | 59 57 4 | 2353 | 58 12 21 | 2336 | 56 27 14 | 2318 |
| | Aldebaran | E. | 93 1 57 | 2415 | 91 18 43 | 2396 | 89 35 2 | 2377 | 87 50 54 | 2359 |
| 19 | Saturn | W. | 100 56 33 | 2256 | 102 43 37 | 2241 | 104 31 4 | 2225 | 106 18 55 | 2209 |
| | Antares | W. | 101 2 11 | 2196 | 102 50 44 | 2180 | 104 39 42 | 2164 | 106 29 4 | 2148 |
| | Mars | W. | 96 9 17 | 2433 | 97 52 5 | 2415 | 99 35 18 | 2398 | 101 18 55 | 2382 |
| | α Arietis | E. | 47 35 37 | 2241 | 45 48 11 | 2227 | 44 0 24 | 2215 | 42 12 19 | 2202 |
| | Aldebaran | E. | 79 3 52 | 2275 | 77 17 15 | 2259 | 75 30 15 | 2244 | 73 42 53 | 2230 |
| 20 | Saturn | W. | 115 23 32 | 2143 | 117 13 26 | 2132 | 119 3 37 | 2122 | 120 54 3 | 2111 |
| | Mars | W. | 110 2 37 | 2309 | 111 48 23 | 2296 | 113 34 28 | 2284 | 115 20 51 | 2273 |
| | α Aquilæ | W. | 66 23 56 | 3007 | 67 54 0 | 2970 | 69 24 50 | 2936 | 70 56 23 | 2905 |
| | Fomalhaut | W. | 38 19 20 | 2818 | 39 53 25 | 2750 | 41 28 58 | 2689 | 43 5 52 | 2635 |
| | α Arietis | E. | 33 7 58 | 2163 | 31 18 34 | 2159 | 29 29 5 | 2159 | 27 39 36 | 2162 |
| | Aldebaran | E. | 64 41 9 | 2171 | 62 51 58 | 2161 | 61 2 32 | 2153 | 59 12 54 | 2145 |
| 21 | α Aquilæ | W. | 78 42 56 | 2790 | 80 17 39 | 2773 | 81 52 42 | 2760 | 83 28 2 | 2748 |
| | Fomalhaut | W. | 51 26 30 | 2438 | 53 9 11 | 2410 | 54 52 32 | 2385 | 56 36 29 | 2362 |
| | α Pegasi | W. | 31 4 37 | 3012 | 32 34 35 | 2905 | 34 6 48 | 2812 | 35 41 0 | 2733 |
| | α Arietis | E. | 18 35 49 | 2269 | 16 49 4 | 2330 | 15 3 48 | 2419 | 13 20 41 | 2556 |
| | Aldebaran | E. | 50 2 35 | 2129 | 48 12 20 | 2130 | 46 22 7 | 2133 | 44 31 58 | 2138 |
| | Pollux | E. | 92 30 47 | 2001 | 90 37 15 | 1994 | 88 43 31 | 1988 | 86 49 38 | 1983 |
| 22 | α Aquilæ | W. | 91 27 32 | 2726 | 93 3 38 | 2728 | 94 39 41 | 2732 | 96 15 38 | 2738 |
| | Fomalhaut | W. | 65 23 12 | 2285 | 67 9 34 | 2276 | 68 56 9 | 2268 | 70 42 55 | 2262 |
| | α Pegasi | W. | 43 54 2 | 2474 | 45 35 52 | 2441 | 47 18 28 | 2413 | 49 1 44 | 2389 |
| | Aldebaran | E. | 35 24 27 | 2205 | 33 36 7 | 2230 | 31 48 24 | 2260 | 30 1 26 | 2298 |
| | Pollux | E. | 77 18 33 | 1968 | 75 24 9 | 1968 | 73 29 45 | 1968 | 71 35 21 | 1970 |
| 23 | α Aquilæ | W. | 104 12 10 | 2808 | 105 46 27 | 2829 | 107 20 17 | 2853 | 108 53 36 | 2881 |
| | Fomalhaut | W. | 79 38 11 | 2256 | 81 25 15 | 2259 | 83 12 15 | 2264 | 84 59 8 | 2270 |
| | α Pegasi | W. | 57 45 12 | 2315 | 59 30 49 | 2308 | 61 16 37 | 2303 | 63 2 32 | 2300 |
| | Aldebaran | E. | 21 25 7 | 2672 | 19 47 50 | 2818 | 18 13 46 | 3011 | 16 43 47 | 3272 |
| | Pollux | E. | 62 4 15 | 1988 | 60 10 22 | 1994 | 58 16 38 | 2000 | 56 23 4 | 2008 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | Noon. | P. L. of diff. | III h. | P. L. of diff. | VI h. | P. L. of diff. | IX h. |
|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ |
| 23 | Regulus E. | 106 31 20 | 1968 | 104 36 55 | 1971 | 102 42 35 | 1974 | 100 48 20 |
| 24 | Fomalhaut W. | 86 45 52 | 2277 | 88 32 26 | 2284 | 90 18 49 | 2294 | 92 4 57 |
| | α Pegasi W. | 64 48 31 | 2299 | 66 34 32 | 2300 | 68 20 32 | 2301 | 70 6 30 |
| | α Arietis W. | 21 14 53 | 2183 | 23 3 46 | 2167 | 24 53 3 | 2156 | 26 42 37 |
| | Pollux E. | 54 29 43 | 2016 | 52 36 34 | 2025 | 50 43 39 | 2035 | 48 51 0 |
| | Regulus E. | 91 19 7 | 2010 | 89 25 49 | 2019 | 87 32 45 | 2028 | 85 39 55 |
| | Venus E. | 128 13 56 | 1983 | 126 19 55 | 1992 | 124 26 8 | 2002 | 122 32 37 |
| 25 | Fomalhaut W. | 100 51 15 | 2374 | 102 35 27 | 2391 | 104 19 14 | 2410 | 106 2 35 |
| | α Pegasi W. | 78 54 24 | 2341 | 80 39 24 | 2351 | 82 24 9 | 2363 | 84 8 37 |
| | α Arietis W. | 35 51 4 | 2163 | 37 40 28 | 2170 | 39 29 41 | 2180 | 41 18 39 |
| | Pollux E. | 39 32 1 | 2107 | 37 41 12 | 2120 | 35 50 44 | 2135 | 34 0 39 |
| | Regulus E. | 76 19 55 | 2096 | 74 28 50 | 2109 | 72 38 5 | 2124 | 70 47 42 |
| | Venus E. | 113 9 33 | 2076 | 111 17 57 | 2090 | 109 26 43 | 2105 | 107 35 51 |
| | Sun E. | 139 51 4 | 2419 | 138 7 56 | 2431 | 136 25 6 | 2445 | 134 42 36 |
| 26 | α Pegasi W. | 92 46 2 | 2450 | 94 28 25 | 2468 | 96 10 23 | 2486 | 97 51 56 |
| | α Arietis W. | 50 19 19 | 2252 | 52 6 29 | 2266 | 53 53 19 | 2281 | 55 39 47 |
| | Aldebaran W. | 21 11 45 | 2810 | 22 46 0 | 2743 | 24 21 43 | 2693 | 25 58 33 |
| | Pollux E. | 24 56 23 | 2239 | 23 8 53 | 2258 | 21 21 52 | 2280 | 19 35 23 |
| | Regulus E. | 61 41 18 | 2214 | 59 53 11 | 2230 | 58 5 28 | 2246 | 56 18 9 |
| | Venus E. | 98 27 35 | 2202 | 96 39 11 | 2220 | 94 51 13 | 2237 | 93 3 41 |
| | Sun E. | 126 15 18 | 2538 | 124 34 58 | 2555 | 122 55 1 | 2572 | 121 15 28 |
| 27 | α Arietis W. | 64 26 26 | 2376 | 66 10 35 | 2391 | 67 54 22 | 2409 | 69 37 44 |
| | Aldebaran W. | 34 11 30 | 2581 | 35 50 51 | 2580 | 37 30 14 | 2580 | 39 9 36 |
| | Regulus E. | 47 27 48 | 2348 | 45 42 59 | 2365 | 43 58 34 | 2383 | 42 14 3[illegible] |
| | Venus E. | 84 12 46 | 2348 | 82 27 56 | 2366 | 80 43 32 | 2385 | 78 59 3[illegible] |
| | Sun E. | 113 3 45 | 2680 | 111 26 38 | 2698 | 109 49 56 | 2717 | 108 13 3[illegible] |
| 28 | α Arietis W. | 78 8 38 | 2510 | 79 49 38 | 2526 | 81 30 15 | 2543 | 83 10 2[illegible] |
| | Aldebaran W. | 47 24 38 | 2621 | 49 3 4 | 2631 | 50 41 17 | 2642 | 52 19 1[illegible] |
| | Regulus E. | 33 40 53 | 2488 | 31 59 23 | 2505 | 30 18 16 | 2522 | 28 37 3[illegible] |
| | Venus E. | 70 26 37 | 2498 | 68 45 21 | 2516 | 67 4 30 | 2535 | 65 24 [illegible] |
| | Sun E. | 100 18 21 | 2829 | 98 44 31 | 2847 | 97 11 4 | 2865 | 95 38 [illegible] |
| 29 | α Arietis W. | 91 25 57 | 2640 | 93 3 58 | 2656 | 94 41 37 | 2672 | 96 18 5[illegible] |
| | Aldebaran W. | 60 25 9 | 2714 | 62 1 30 | 2727 | 63 37 34 | 2739 | 65 13 2[illegible] |
| | Pollux W. | 16 44 44 | 2663 | 18 22 13 | 2672 | 19 59 30 | 2681 | 21 36 3[illegible] |
| | Regulus E. | 20 19 52 | 2623 | 18 41 28 | 2640 | 17 3 28 | 2657 | 15 25 5[illegible] |
| | Venus E. | 57 8 15 | 2642 | 55 30 17 | 2659 | 53 52 42 | 2677 | 52 15 3[illegible] |
| | Sun E. | 87 58 26 | 2971 | 86 27 37 | 2989 | 84 57 10 | 3006 | 83 27 [illegible] |
| 30 | Aldebaran W. | 73 8 10 | 2815 | 74 42 19 | 2828 | 76 16 11 | 2839 | 77 49 4[illegible] |
| | Pollux W. | 29 38 15 | 2751 | 31 13 47 | 2763 | 32 49 4 | 2775 | 34 24 [illegible] |
| | Venus E. | 44 15 1 | 2773 | 42 39 58 | 2789 | 41 5 15 | 2803 | 39 30 51 |
| | Sun E. | 76 1 32 | 3100 | 74 33 22 | 3115 | 73 5 31 | 3129 | 71 37 57 |
| 31 | Aldebaran W. | 85 34 10 | 2908 | 87 6 19 | 2919 | 88 38 14 | 2929 | 90 9 56 |
| | Pollux W. | 42 15 26 | 2842 | 43 48 59 | 2853 | 45 22 18 | 2863 | 46 55 24 |
| | Venus E. | 31 43 26 | 2886 | 30 10 49 | 2899 | 28 38 29 | 2912 | 27 6 25 |
| | Sun E. | 64 24 19 | 3211 | 62 58 23 | 3223 | 61 32 41 | 3236 | 60 7 14 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | Midnight. | P.L. of diff. | XV h. | P.L. of diff. | XVIII h. | P.L. of diff. | XXI h. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 23 | Regulus E. | 98 54 11 | 1983 | 97 0 10 | 1989 | 95 6 18 | 1996 | 93 12 37 | 2003 |
| 24 | Fomalhaut W. | 93 50 50 | 2316 | 95 36 26 | 2329 | 97 21 43 | 2343 | 99 6 40 | 2358 |
| | α Pegasi W. | 71 52 22 | 2309 | 73 38 8 | 2315 | 75 23 45 | 2323 | 77 9 11 | 2332 |
| | α Arietis W. | 28 32 19 | 2148 | 30 22 5 | 2149 | 32 11 50 | 2151 | 34 1 31 | 2157 |
| | Pollux E. | 46 58 36 | 2056 | 45 6 29 | 2068 | 43 14 41 | 2080 | 41 23 11 | 2093 |
| | Regulus E. | 83 47 20 | 2049 | 81 55 2 | 2060 | 80 3 1 | 2072 | 78 11 19 | 2084 |
| | Venus E. | 120 39 23 | 2025 | 118 46 27 | 2036 | 116 53 49 | 2049 | 115 1 31 | 2062 |
| 25 | Fomalhaut W. | 107 45 28 | 2450 | 109 27 51 | 2472 | 111 9 44 | 2495 | 112 51 5 | 2519 |
| | α Pegasi W. | 85 52 47 | 2389 | 87 36 37 | 2403 | 89 20 7 | 2418 | 91 3 16 | 2434 |
| | α Arietis W. | 43 7 22 | 2200 | 44 55 49 | 2212 | 46 43 58 | 2225 | 48 31 48 | 2238 |
| | Pollux E. | 32 10 57 | 2167 | 30 21 40 | 2184 | 28 32 48 | 2201 | 26 44 22 | 2219 |
| | Regulus E. | 68 57 40 | 2152 | 67 8 0 | 2167 | 65 18 43 | 2182 | 63 29 49 | 2198 |
| | Venus E. | 105 45 23 | 2136 | 103 55 19 | 2152 | 102 5 39 | 2169 | 100 16 24 | 2186 |
| | Sun E. | 133 0 25 | 2474 | 131 18 36 | 2490 | 129 37 8 | 2505 | 127 56 2 | 2521 |
| 26 | α Pegasi W. | 99 33 4 | 2524 | 101 13 44 | 2544 | 102 53 56 | 2564 | 104 33 40 | 2585 |
| | α Arietis W. | 57 25 52 | 2311 | 59 11 35 | 2327 | 60 56 55 | 2343 | 62 41 52 | 2358 |
| | Aldebaran W. | 27 36 13 | 2628 | 29 14 30 | 2609 | 30 53 13 | 2594 | 32 32 16 | 2586 |
| | Pollux E. | 17 49 29 | 2329 | 16 4 12 | 2357 | 14 19 36 | 2393 | 12 35 51 | 2436 |
| | Regulus E. | 54 31 15 | 2280 | 52 44 46 | 2296 | 50 58 41 | 2314 | 49 13 2 | 2331 |
| | Venus E. | 91 16 36 | 2274 | 89 29 58 | 2292 | 87 43 47 | 2311 | 85 58 3 | 2329 |
| | Sun E. | 119 36 18 | 2607 | 117 57 33 | 2625 | 116 19 12 | 2643 | 114 41 16 | 2662 |
| 27 | α Arietis W. | 71 20 42 | 2442 | 73 3 17 | 2459 | 74 45 28 | 2476 | 76 27 15 | 2493 |
| | Aldebaran W. | 40 48 53 | 2588 | 42 28 4 | 2595 | 44 7 6 | 2602 | 45 45 58 | 2611 |
| | Regulus E. | 40 31 1 | 2418 | 38 47 52 | 2436 | 37 5 8 | 2453 | 35 22 48 | 2470 |
| | Venus E. | 77 16 7 | 2423 | 75 33 5 | 2441 | 73 50 29 | 2460 | 72 8 19 | 2480 |
| | Sun E. | 106 37 47 | 2754 | 105 2 19 | 2772 | 103 27 15 | 2791 | 101 52 36 | 2810 |
| 28 | α Arietis W. | 84 50 19 | 2577 | 86 29 46 | 2592 | 88 8 52 | 2608 | 89 47 36 | 2625 |
| | Aldebaran W. | 53 56 58 | 2665 | 55 34 25 | 2677 | 57 11 36 | 2689 | 58 48 31 | 2702 |
| | Regulus E. | 26 57 15 | 2556 | 25 17 19 | 2573 | 23 37 47 | 2590 | 21 58 38 | 2607 |
| | Venus E. | 63 44 6 | 2572 | 62 4 32 | 2589 | 60 25 22 | 2607 | 58 46 36 | 2625 |
| | Sun E. | 94 5 20 | 2902 | 92 33 3 | 2919 | 91 1 8 | 2937 | 89 29 36 | 2954 |
| 29 | α Arietis W. | 97 55 53 | 2702 | 99 32 31 | 2717 | 101 8 49 | 2731 | 102 44 47 | 2745 |
| | Aldebaran W. | 66 48 53 | 2765 | 68 24 7 | 2778 | 69 59 4 | 2790 | 71 33 45 | 2802 |
| | Pollux W. | 23 13 26 | 2703 | 24 50 2 | 2715 | 26 26 22 | 2727 | 28 2 26 | 2738 |
| | Regulus E. | 13 48 35 | 2692 | 12 11 44 | 2711 | 10 35 18 | 2732 | 8 59 20 | 2757 |
| | Venus E. | 50 38 42 | 2710 | 49 2 15 | 2726 | 47 26 9 | 2742 | 45 50 25 | 2757 |
| | Sun E. | 81 57 18 | 3038 | 80 27 52 | 3054 | 78 58 46 | 3069 | 77 29 59 | 3086 |
| 30 | Aldebaran W. | 79 23 11 | 2863 | 80 56 18 | 2874 | 82 29 10 | 2886 | 84 1 47 | 2897 |
| | Pollux W. | 35 58 51 | 2798 | 37 33 22 | 2809 | 39 7 38 | 2821 | 40 41 39 | 2832 |
| | Venus E. | 37 56 46 | 2832 | 36 22 59 | 2846 | 34 49 31 | 2859 | 33 16 20 | 2873 |
| | Sun E. | 70 10 41 | 3158 | 68 43 41 | 3172 | 67 16 58 | 3185 | 65 50 31 | 3198 |
| 31 | Aldebaran W. | 91 41 24 | 2950 | 93 12 40 | 2960 | 94 43 43 | 2970 | 96 14 34 | 2979 |
| | Pollux W. | 48 28 17 | 2883 | 50 0 58 | 2892 | 51 33 27 | 2901 | 53 5 44 | 2910 |
| | Venus E. | 25 34 36 | 2935 | 24 3 2 | 2946 | 22 31 42 | 2958 | 21 0 37 | 2970 |
| | Sr | 1 | 3259 | 57 17 1 | 3270 | 55 52 14 | 3282 | 54 27 41 | 3291 |

## CONFIGURATIONS OF THE SATELLITES OF JUPIT

THE SATELLITES OF JUPITER

are not visible this Month,

JUPITER being too near to the SUN.

## ECLIPSES OF THE SATELLITES OF JUPITER.

THE ECLIPSES OF THE SATELLITES OF JUPITER

are not visible this Month,

JUPITER being too near to the SUN.

## APPROXIMATE SIDEREAL TIMES
OF THE
## OCCULTATIONS OF JUPITER'S SATELLITES BY JUPITER
AND OF THE
## TRANSITS OF THE SATELLITES AND THEIR SHADOWS OVER THE DISC OF THE PLANET.

THE SATELLITES OF JUPITER

are not visible this Month,

JUPITER being too near to the SUN.

| Day of the Month. | For correcting the Places of the Fixed Stars. At Mean Midnight, Logarithm of A | B | C | D | Mean Time of Transit of the First Point of Aries. | Mean Equinoctial Time, adding 0d·293960, Days. | From Mean Noon of January 1, Day of the Year. | Fraction of the Year. |
|---|---|---|---|---|---|---|---|---|
| | | | | | h m s | | | |
| 1 | +1·2669 | +0·4580 | +9·9200 | −0·9712 | 11 19 59·86 | 192 | 273 | ·747 |
| 2 | 1·2658 | 0·5074 | 9·9212 | 0·9708 | 11 16 3·95 | 193 | 274 | ·750 |
| 3 | 1·2646 | 0·5517 | 9·9223 | 0·9704 | 11 12 8·04 | 194 | 275 | ·753 |
| 4 | +1·2632 | +0·5918 | +9·9235 | −0·9700 | 11 8 12·14 | 195 | 276 | ·756 |
| 5 | 1·2616 | 0·6285 | 9·9247 | 0·9695 | 11 4 16·24 | 196 | 277 | ·758 |
| 6 | 1·2600 | 0·6621 | 9·9258 | 0·9691 | 11 0 20·33 | 197 | 278 | ·761 |
| 7 | +1·2582 | +0·6932 | +9·9270 | −0·9686 | 10 56 24·43 | 198 | 279 | ·764 |
| 8 | 1·2562 | 0·7222 | 9·9282 | 0·9680 | 10 52 28·53 | 199 | 280 | ·767 |
| 9 | 1·2541 | 0·7493 | 9·9293 | 0·9675 | 10 48 32·62 | 200 | 281 | ·769 |
| 0 | +1·2519 | +0·7746 | +9·9305 | −0·9669 | 10 44 36·71 | 201 | 282 | ·772 |
| 1 | 1·2495 | 0·7984 | 9·9317 | 0·9663 | 10 40 40·80 | 202 | 283 | ·775 |
| 2 | 1·2470 | 0·8209 | 9·9329 | 0·9656 | 10 36 44·89 | 203 | 284 | ·778 |
| 13 | +1·2444 | +0·8422 | +9·9341 | −0·9650 | 10 32 48·98 | 204 | 285 | ·780 |
| 14 | 1·2416 | 0·8623 | 9·9353 | 0·9643 | 10 28 53·07 | 205 | 286 | ·783 |
| 15 | 1·2386 | 0·8814 | 9·9365 | 0·9635 | 10 24 57·15 | 206 | 287 | ·786 |
| 16 | +1·2355 | +0·8997 | +9·9377 | −0·9628 | 10 21 1·24 | 207 | 288 | ·789 |
| 17 | 1·2322 | 0·9171 | 9·9389 | 0·9621 | 10 17 5·33 | 208 | 289 | ·791 |
| 18 | 1·2288 | 0·9337 | 9·9402 | 0·9613 | 10 13 9·42 | 209 | 290 | ·794 |
| 19 | +1·2252 | +0·9495 | +9·9414 | −0·9605 | 10 9 13·52 | 210 | 291 | ·797 |
| 20 | 1·2215 | 0·9647 | 9·9427 | 0·9596 | 10 5 17·61 | 211 | 292 | ·799 |
| 21 | 1·2176 | 0·9792 | 9·9439 | 0·9588 | 10 1 21·71 | 212 | 293 | ·802 |
| 22 | +1·2135 | +0·9931 | +9·9452 | −0·9579 | 9 57 25·81 | 213 | 294 | ·805 |
| 23 | 1·2092 | 1·0066 | 9·9465 | 0·9570 | 9 53 29·90 | 214 | 295 | ·808 |
| 24 | 1·2048 | 1·0195 | 9·9477 | 0·9561 | 9 49 33·99 | 215 | 296 | ·810 |
| 25 | +1·2002 | +1·0319 | +9·9490 | −0·9552 | 9 45 38·08 | 216 | 297 | ·813 |
| 26 | 1·1954 | 1·0438 | 9·9503 | 0·9542 | 9 41 42·16 | 217 | 298 | ·816 |
| 27 | 1·1904 | 1·0553 | 9·9516 | 0·9533 | 9 37 46·25 | 218 | 299 | ·819 |
| 28 | +1·1852 | +1·0663 | +9·9530 | −0·9523 | 9 33 50·33 | 219 | 300 | ·821 |
| 29 | 1·1798 | 1·0770 | 9·9543 | 0·9513 | 9 29 54·42 | 220 | 301 | ·824 |
| 30 | 1·1742 | 1·0873 | 9·9556 | 0·9503 | 9 25 58·51 | 221 | 302 | ·827 |
| 31 | | 1·0972 | 9·9570 | 0·9493 | 9 22 2·61 | 222 | 303 | ·830 |
| | | 68 | +9·9583 | −0·9483 | 9 18 6·70 | 223 | 304 | ·832 |

## AT APPARENT NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | Diff. for 1 hour. | THE SUN'S Apparent Declination. | Diff. for 1 hour. | Sidereal Time of the Semidiam. passing the Meridian.* | Equation of Time, *to be subtracted from Apparent Time.* |
|---|---|---|---|---|---|---|---|
| | | h m s | s | ° ′ ″ | ″ | m s | m s |
| Frid. | 1 | 14 24 3 ·62 | 9 ·807 | S. 14 19 0 ·8 | 48 ·12 | 1 6 ·84 | 16 15 ·32 |
| Sat. | 2 | 14 27 58 ·98 | 9 ·841 | 14 38 15 ·6 | 47 ·53 | 1 6 ·95 | 16 16 ·51 |
| *Sun.* | 3 | 14 31 55 ·16 | 9 ·875 | 14 57 16 ·3 | 46 ·92 | 1 7 ·06 | 16 16 ·88 |
| Mon. | 4 | 14 35 52 ·17 | 9 ·910 | 15 16 2 ·3 | 46 ·29 | 1 7 ·18 | 16 16 ·43 |
| Tues. | 5 | 14 39 50 ·02 | 9 ·945 | 15 34 33 ·3 | 45 ·65 | 1 7 ·30 | 16 15 ·14 |
| Wed. | 6 | 14 43 48 ·70 | 9 ·980 | 15 52 48 ·9 | 44 ·98 | 1 7 ·41 | 16 13 ·02 |
| Thur. | 7 | 14 47 48 ·21 | 10 ·015 | 16 10 48 ·5 | 44 ·30 | 1 7 ·53 | 16 10 ·07 |
| Frid. | 8 | 14 51 48 ·57 | 10 ·050 | 16 28 31 ·8 | 43 ·61 | 1 7 ·65 | 16 6 ·28 |
| Sat. | 9 | 14 55 49 ·78 | 10 ·085 | 16 45 58 ·5 | 42 ·89 | 1 7 ·77 | 16 1 ·66 |
| *Sun.* | 10 | 14 59 51 ·82 | 10 ·120 | 17 3 7 ·9 | 42 ·16 | 1 7 ·89 | 15 56 ·19 |
| Mon. | 11 | 15 3 54 ·69 | 10 ·155 | 17 19 59 ·8 | 41 ·41 | 1 8 ·01 | 15 49 ·89 |
| Tues. | 12 | 15 7 58 ·40 | 10 ·190 | 17 36 33 ·7 | 40 ·65 | 1 8 ·13 | 15 42 ·76 |
| Wed. | 13 | 15 12 2 ·95 | 10 ·224 | 17 52 49 ·2 | 39 ·87 | 1 8 ·25 | 15 34 ·79 |
| Thur. | 14 | 15 16 8 ·32 | 10 ·258 | 18 8 46 ·0 | 39 ·06 | 1 8 ·37 | 15 26 ·00 |
| Frid. | 15 | 15 20 14 ·51 | 10 ·292 | 18 24 23 ·5 | 38 ·25 | 1 8 ·49 | 15 16 ·39 |
| Sat. | 16 | 15 24 21 ·53 | 10 ·327 | 18 39 41 ·5 | 37 ·42 | 1 8 ·61 | 15 5 ·95 |
| *Sun.* | 17 | 15 28 29 ·38 | 10 ·362 | 18 54 39 ·6 | 36 ·57 | 1 8 ·72 | 14 54 ·68 |
| Mon. | 18 | 15 32 38 ·06 | 10 ·396 | 19 9 17 ·4 | 35 ·72 | 1 8 ·84 | 14 42 ·59 |
| Tues. | 19 | 15 36 47 ·55 | 10 ·430 | 19 23 34 ·6 | 34 ·84 | 1 8 ·95 | 14 29 ·68 |
| Wed. | 20 | 15 40 57 ·87 | 10 ·464 | 19 37 30 ·7 | 33 ·95 | 1 9 ·06 | 14 15 ·96 |
| Thur. | 21 | 15 45 9 ·00 | 10 ·498 | 19 51 5 ·5 | 33 ·05 | 1 9 ·17 | 14 1 ·43 |
| Frid. | 22 | 15 49 20 ·95 | 10 ·531 | 20 4 18 ·7 | 32 ·13 | 1 9 ·28 | 13 46 ·09 |
| Sat. | 23 | 15 53 33 ·69 | 10 ·564 | 20 17 9 ·8 | 31 ·20 | 1 9 ·39 | 13 29 ·95 |
| *Sun.* | 24 | 15 57 47 ·22 | 10 ·597 | 20 29 38 ·6 | 30 ·25 | 1 9 ·49 | 13 13 ·03 |
| Mon. | 25 | 16 2 1 ·55 | 10 ·629 | 20 41 44 ·6 | 29 ·29 | 1 9 ·60 | 12 55 ·31 |
| Tues. | 26 | 16 6 16 ·65 | 10 ·661 | 20 53 27 ·6 | 28 ·32 | 1 9 ·70 | 12 36 ·82 |
| Wed. | 27 | 16 10 32 ·51 | 10 ·692 | 21 4 47 ·2 | 27 ·33 | 1 9 ·80 | 12 17 ·57 |
| Thur. | 28 | 16 14 49 ·12 | 10 ·723 | 21 15 43 ·0 | 26 ·32 | 1 9 ·90 | 11 57 ·57 |
| Frid. | 29 | 16 19 6 ·46 | 10 ·752 | 21 26 14 ·7 | 25 ·31 | 1 10 ·00 | 11 36 ·84 |
| Sat. | 30 | 16 23 24 ·51 | 10 ·781 | 21 36 22 ·1 | 24 ·27 | 1 10 ·09 | 11 15 ·41 |
| *Sun.* | 31 | 16 27 43 ·25 | | S. 21 46 4 ·6 | | 1 10 ·18 | 10 53 ·28 |

* *Mean* Time of the Semidiameter passing may be found by subtracting 0″19 from the *Sidereal*

## AT MEAN NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | THE SUN'S Apparent Declination. | THE SUN'S Semidiam.* | Equation of Time, to be added to Mean Time. | Sidereal Time. |
|---|---|---|---|---|---|---|
| | | h m s | ° ′ ″ | ′ ″ | m s | h m s |
| Frid. | 1 | 14 24 6·28 | S. 14 19 13·9 | 16 8·7 | 16 15·34 | 14 40 21·62 |
| Sat. | 2 | 14 2[illegible] 65 | 14 38 28·6 | 16 9·0 | 16 16·52 | 14 44 18·17 |
| *Sun.* | 3 | 14 3[illegible] 57·84 | 14 57 29·1 | 16 9·3 | 16 16·88 | 14 48 14·72 |
| Mon. | 4 | 14 35 54·86 | 15 16 14·9 | 16 9·5 | 16 16·41 | 14 52 11·27 |
| Tues. | 5 | 14 39 52·71 | 15 34 45·8 | 16 9·8 | 16 15·11 | 14 56 7·82 |
| Wed. | 6 | 14 43 51·39 | 15 53 1·1 | 16 10·0 | 16 12·99 | 15 0 4·38 |
| Thur. | 7 | 14 47 50·91 | 16 11 0·5 | 16 10·2 | 16 10·03 | 15 4 0·94 |
| Frid. | 8 | 14 51 51·26 | 16 28 43·6 | 16 10·5 | 16 6·23 | 15 7 57·49 |
| Sat. | 9 | 14 55 52·46 | 16 46 10·0 | 16 10·7 | 16 1·60 | 15 11 54·06 |
| *Sun.* | 10 | 14 59 54·50 | 17 3 19·2 | 16 10·9 | 15 56·12 | 15 15 50·62 |
| Mon. | 11 | 15 3 57·36 | 17 20 10·9 | 16 11·2 | 15 49·82 | 15 19 47·18 |
| Tues. | 12 | 15 8 1·06 | 17 36 44·5 | 16 11·4 | 15 42·68 | 15 23 43·74 |
| Wed. | 13 | 15 12 5·59 | 17 52 59·7 | 16 11·6 | 15 34·71 | 15 27 40·30 |
| Thur. | 14 | 15 16 10·95 | 18 8 56·1 | 16 11·8 | 15 25·90 | 15 31 36·85 |
| Frid. | 15 | 15 20 17·13 | 18 24 33·4 | 16 12·0 | 15 16·28 | 15 35 33·41 |
| Sat. | 16 | 15 24 24·13 | 18 39 51·1 | 16 12·3 | 15 5·83 | 15 39 29·96 |
| *Sun.* | 17 | 15 28 31·95 | 18 54 48·8 | 16 12·5 | 14 54·56 | 15 43 26·51 |
| Mon. | 18 | 15 32 40·60 | 19 9 26·3 | 16 12·7 | 14 42·46 | 15 47 23·06 |
| Tues. | 19 | 15 36 50·07 | 19 23 43·1 | 16 12·9 | 14 29·55 | 15 51 19·62 |
| Wed. | 20 | 15 41 0·35 | 19 37 38·9 | 16 13·1 | 14 15·82 | 15 55 16·17 |
| Thur. | 21 | 15 45 11·45 | 19 51 13·4 | 16 13·3 | 14 1·28 | 15 59 12·73 |
| Frid. | 22 | 15 49 23·36 | 20 4 26·2 | 16 13·5 | 13 45·94 | 16 3 9·30 |
| Sat. | 23 | 15 53 36·07 | 20 17 17·0 | 16 13·6 | 13 29·79 | 16 7 5·86 |
| *Sun.* | 24 | 15 57 49·56 | 20 29 45·4 | 16 13·8 | 13 12·86 | 16 11 2·42 |
| Mon. | 25 | 16 2 3·84 | 20 41 51·0 | 16 14·0 | 12 55·15 | 16 14 58·99 |
| Tues. | 26 | 16 6 18·89 | 20 53 33·6 | 16 14·2 | 12 36·65 | 16 18 55·54 |
| Wed. | 27 | 16 10 34·70 | 21 4 52·8 | 16 14·3 | 12 17·40 | 16 22 52·10 |
| Thur. | 28 | 16 14 51·25 | 21 15 48·3 | 16 14·5 | 11 57·40 | 16 26 48·65 |
| Frid. | 29 | 16 19 8·54 | 21 26 19·7 | 16 14·6 | 11 36·67 | 16 30 45·21 |
| Sat. | 30 | 16 23 26·53 | 21 36 26·7 | 16 14·8 | 11 15·23 | 16 34 41·76 |
| *Sun.* | 31 | 16 27 45·21 | S. 21 [illegible] ·0 | 16 14·9 | 10 53·10 | 16 38 38·31 |

* The Semidiameter for [illegible] same as that for *Mean* Noon.

## MEAN TIME.

| Day of the Month. | THE SUN'S Apparent Longitude. Noon. | THE SUN'S Apparent Latitude. Noon. | Logarithm of the Radius Vector of the Earth. Noon. | THE MOON'S Semidiameter. Noon. | THE MOON'S Semidiameter. Midnight. | THE MOON'S Horizontal Parall Noon. | THE MOON'S Horizontal Parall Mid |
|---|---|---|---|---|---|---|---|
| | ° ′ ″ | ″ | | ′ ″ | ′ ″ | ′ ″ | ′ |
| 1 | 218 24 24 ·9 | N.0 ·45 | 9 ·9964470 | 15 1 ·0 | 14 57 ·1 | 55 6 ·6 | 54 |
| 2 | 219 24 33 ·0 | 0 ·32 | 9 ·9963385 | 14 53 ·7 | 14 50 ·7 | 54 39 ·6 | 54 |
| 3 | 220 24 43 ·2 | 0 ·20 | 9 ·9962307 | 14 48 ·2 | 14 46 ·[illegible] | 54 19 ·5 | 54 |
| 4 | 221 24 55 ·4 | N.0 ·08 | 9 ·9961235 | 14 44 ·4 | 14 43 ·0 | 54 5 ·5 | 54 |
| 5 | 222 25 9 ·6 | S.0 ·02 | 9 ·9960168 | 14 42 ·1 | 14 41 ·5 | 53 57 ·0 | 53 |
| 6 | 223 25 25 ·6 | 0 ·09 | 9 ·9959106 | 14 41 ·2 | 14 41 ·3 | 53 53 ·9 | 53 |
| 7 | 224 25 43 ·4 | 0 ·14 | 9 ·9958051 | 14 41 ·8 | 14 42 ·6 | 53 55 ·9 | 53 |
| 8 | 225 26 2 ·9 | 0 ·16 | 9 ·9957002 | 14 43 ·8 | 14 45 ·3 | 54 3 ·1 | 54 |
| 9 | 226 26 24 ·2 | 0 ·15 | 9 ·9955959 | 14 47 ·3 | 14 49 ·7 | 54 16 ·2 | 54 |
| 10 | 227 26 46 ·9 | 0 ·11 | 9 ·9954925 | 14 52 ·5 | 14 55 ·8 | 54 35 ·2 | 54 |
| 11 | 228 27 11 ·1 | S.0 ·04 | 9 ·9953901 | 14 59 ·6 | 15 3 ·9 | 55 1 ·2 | 55 |
| 12 | 229 27 36 ·7 | N.0 ·06 | 9 ·9952888 | 15 8 ·7 | 15 14 ·1 | 55 34 ·7 | 55 |
| 13 | 230 28 3 ·7 | 0 ·17 | 9 ·9951886 | 15 20 ·0 | 15 26 ·3 | 56 16 ·1 | 56 |
| 14 | 231 28 31 ·9 | 0 ·30 | 9 ·9950898 | 15 33 ·1 | 15 40 ·3 | 57 4 ·3 | 57 |
| 15 | 232 29 1 ·3 | 0 ·43 | 9 ·9949925 | 15 47 ·7 | 15 55 ·3 | 57 57 ·7 | 58 |
| 16 | 233 29 32 ·0 | 0 ·56 | 9 ·9948968 | 16 2 ·9 | 16 10 ·4 | 58 53 ·6 | 59 |
| 17 | 234 30 4 ·0 | 0 ·69 | 9 ·9948030 | 16 17 ·5 | 16 24 ·2 | 59 47 ·3 | 60 |
| 18 | 235 30 37 ·3 | 0 ·80 | 9 ·9947111 | 16 30 ·1 | 16 35 ·1 | 60 33 ·3 | 60 |
| 19 | 236 31 11 ·9 | 0 ·89 | 9 ·9946213 | 16 39 ·1 | 16 41 ·9 | 61 6 ·3 | 61 |
| 20 | 237 31 47 ·9 | 0 ·95 | 9 ·9945337 | 16 43 ·3 | 16 43 ·5 | 61 22 ·0 | 61 |
| 21 | 238 32 25 ·4 | 0 ·99 | 9 ·9944484 | 16 42 ·2 | 16 39 ·6 | 61 17 ·8 | 61 |
| 22 | 239 33 4 ·4 | 0 ·99 | 9 ·9943655 | 16 35 ·7 | 16 30 ·7 | 60 53 ·8 | 60 |
| 23 | 240 33 44 ·8 | 0 ·97 | 9 ·9942848 | 16 24 ·7 | 16 18 ·0 | 60 13 ·7 | 59 |
| 24 | 241 34 26 ·6 | 0 ·91 | 9 ·9942062 | 16 10 ·6 | 16 2 ·7 | 59 21 ·7 | 58 |
| 25 | 242 35 10 ·0 | 0 ·83 | 9 ·9941298 | 15 54 ·8 | 15 46 ·7 | 58 23 ·8 | 57 |
| 26 | 243 35 54 ·9 | 0 ·73 | 9 ·9940556 | 15 38 ·8 | 15 31 ·2 | 57 25 ·1 | 56 |
| 27 | 244 36 41 ·3 | 0 ·61 | 9 ·9939834 | 15 23 ·9 | 15 17 ·2 | 56 30 ·6 | 56 |
| 28 | 245 37 29 ·2 | 0 ·48 | 9 ·9939132 | 15 10 ·9 | 15 5 ·3 | 55 42 ·9 | 55 |
| 29 | 246 38 18 ·6 | 0 ·34 | 9 ·9938448 | 15 0 ·3 | 14 55 ·9 | 55 4 ·0 | 54 |
| 30 | 247 39 9 ·4 | 0 ·21 | 9 ·9937784 | 14 52 ·2 | 14 49 ·1 | 54 34 ·1 | 54 |
| 31 | 248 40 1 ·6 | N.0 ·09 | 9 ·9937136 | 14 46 ·6 | 14 44 ·6 | 54 13 ·5 | 54 |

## MEAN TIME.

| Day of the Week. | Day of the Month. | THE MOON'S Longitude. Noon. | Longitude. Midnight. | Latitude. Noon. | Latitude. Midnight. | Age. Noon. | Meridian Passage. |
|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | ° ′ ″ | ° ′ ″ | ° ′ ″ | d | h m |
| Frid. | 1 | 165 21 5·6 | 171 26 46·1 | S.0 3 40·6 | S.0 36 20·4 | 24·9 | 20 59·9 |
| Sat. | 2 | 177 29 55·7 | 183 30 59·9 | 1 18 19·2 | 1 39 18·7 | 25·9 | 21 39·5 |
| Sun. | 3 | 189 30 23·8 | 195 28 27·7 | 2 9 0·7 | 2 37 8·0 | 26·9 | 22 19·6 |
| Mon. | 4 | 201 25 31·6 | 207 21 51·0 | 3 3 24·4 | 3 27 35·2 | 27·9 | 23 1·0 |
| Tues. | 5 | 213 17 40·9 | 219 13 14·0 | 3 49 26·3 | 4 8 45·0 | 28·9 | 23 44·6 |
| Wed. | 6 | 225 8 42·1 | 231 4 16·1 | 4 25 20·5 | 4 39 2·9 | 0·2 | ☌ |
| Thur. | 7 | 237 0 5·7 | 242 56 22·4 | 4 49 43·8 | 4 57 15·8 | 1·2 | 0 30·9 |
| Frid. | 8 | 248 53 16·4 | 254 51 1·0 | 5 1 34·3 | 5 2 35·5 | 2·2 | 1 20·0 |
| Sat. | 9 | 260 49 49·1 | 266 49 57·2 | 5 0 17·5 | 4 54 40·0 | 3·2 | 2 11·2 |
| Sun. | 10 | 272 51 42·6 | 278 55 26·1 | 4 45 43·8 | 4 33 31·4 | 4·2 | 3 3·6 |
| Mon. | 11 | 285 1 29·7 | 291 10 18·8 | 4 18 6·9 | 3 59 35·8 | 5·2 | 3 55·8 |
| Tues. | 12 | 297 22 20·6 | 303 38 4·5 | 3 38 5·1 | 3 13 44·0 | 6·2 | 4 46·8 |
| Wed. | 13 | 309 58 0·0 | 316 22 39·1 | 2 46 43·4 | 2 17 16·6 | 7·2 | 5 36·2 |
| Thur. | 14 | 322 52 32·2 | 329 28 9·6 | 1 45 39·4 | 1 12 9·6 | 8·2 | 6 23·9 |
| Frid. | 15 | 336 9 57·3 | 342 58 19·2 | S.0 37 9·6 | S.0 1 4·7 | 9·2 | 7 10·6 |
| Sat. | 16 | 349 53 32·0 | 356 55 46·5 | N.0 35 35·8 | N.1 12 19·1 | 10·2 | 7 57·6 |
| Sun. | 17 | 4 5 1·5 | 11 21 6·7 | 1 48 29·0 | 2 23 25·1 | 11·2 | 8 46·1 |
| Mon. | 18 | 18 43 37·1 | 26 11 55·1 | 2 56 26·2 | 3 26 49·7 | 12·2 | 9 37·6 |
| Tues. | 19 | 33 45 7·8 | 41 22 10·7 | 3 53 54·2 | 4 17 1·2 | 13·2 | 10 33·4 |
| Wed. | 20 | 49 1 45·9 | 56 42 29·0 | 4 35 37·9 | 4 49 16·9 | 14·2 | 11 34·4 |
| Thur. | 21 | 64 22 49·5 | 72 1 18·6 | 4 57 42·1 | 5 0 44·8 | 15·2 | 12 39·7 |
| Frid. | 22 | 79 36 29·7 | 87 7 6·6 | 4 58 26·8 | 4 50 59·3 | 16·2 | 13 46·5 |
| Sat. | 23 | 94 32 1·9 | 101 50 25·0 | 4 38 40·9 | 4 21 56·9 | 17·2 | 14 51·3 |
| Sun. | 24 | 109 1 36·7 | 116 5 15·4 | 4 1 17·2 | 3 37 14·5 | 18·2 | 15 51·2 |
| Mon. | 25 | 123 1 10·9 | 129 49 28·1 | 3 10 22·0 | 2 41 13·1 | 19·2 | 16 45·0 |
| Tues. | 26 | 136 30 19·4 | 143 4 8·1 | 2 10 20·8 | 1 38 14·6 | 20·2 | 17 33·4 |
| Wed. | 27 | 149 31 22·3 | 155 52 36·8 | N.1 5 23·6 | N.0 32 13·3 | 21·2 | 18 17·6 |
| Thur. | 28 | 162 8 27·9 | 168 19 35·2 | S.0 0 52·8 | S.0 33 32·7 | 22·2 | 18 58·9 |
| Frid. | 29 | 174 26 37·1 | 180 30 13·0 | 1 5 26·5 | 1 36 16·7 | 23·2 | 19 38·9 |
| Sat. | 30 | 186 31 0·0 | 192 29 34·0 | 2 5 46·2 | 2 33 39·4 | 24·2 | 20 18·7 |
| Sun. | 31 | 198 26 28·1 | 204 22 13·5 | S.2 59 42·1 | S.3 23 40·3 | 25·2 | 20 59·6 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *FRIDAY* 1. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 11 5 58 ·26 | N. 5 43 20 ·2 | 143 ·77 |
| 1 | 11 7 47 ·30 | 5 28 57 ·6 | 143 ·85 |
| 2 | 11 9 36 ·18 | 5 14 34 ·5 | 143 ·97 |
| 3 | 11 11 24 ·90 | 5 0 10 ·7 | 144 ·05 |
| 4 | 11 13 13 ·47 | 4 45 46 ·4 | 144 ·15 |
| 5 | 11 15 1 ·90 | 4 31 21 ·5 | 144 ·20 |
| 6 | 11 16 50 ·19 | 4 16 56 ·3 | 144 ·27 |
| 7 | 11 18 38 ·33 | 4 2 30 ·7 | 144 ·33 |
| 8 | 11 20 26 ·35 | 3 48 4 ·7 | 144 ·37 |
| 9 | 11 22 14 ·24 | 3 33 38 ·5 | 144 ·42 |
| 10 | 11 24 2 ·01 | 3 19 12 ·0 | 144 ·45 |
| 11 | 11 25 49 ·66 | 3 4 45 ·3 | 144 ·47 |
| 12 | 11 27 37 ·20 | 2 50 18 ·5 | 144 ·48 |
| 13 | 11 29 24 ·63 | 2 35 51 ·6 | 144 ·48 |
| 14 | 11 31 11 ·96 | 2 21 24 ·7 | 144 ·50 |
| 15 | 11 32 59 ·19 | 2 6 57 ·7 | 144 ·48 |
| 16 | 11 34 46 ·33 | 1 52 30 ·8 | 144 ·45 |
| 17 | 11 36 33 ·37 | 1 38 4 ·1 | 144 ·45 |
| 18 | 11 38 20 ·33 | 1 23 37 ·4 | 144 ·40 |
| 19 | 11 40 7 ·22 | 1 9 11 ·0 | 144 ·38 |
| 20 | 11 41 54 ·02 | 0 54 44 ·7 | 144 ·32 |
| 21 | 11 43 40 ·76 | 0 40 18 ·8 | 144 ·27 |
| 22 | 11 45 27 ·43 | 0 25 53 ·2 | 144 ·20 |
| 23 | 11 47 14 ·03 | N. 0 11 28 ·0 | 144 ·13 |
| | *SATURDAY* 2. | | |
| 0 | 11 49 0 ·58 | S. 0 2 56 ·8 | 144 ·05 |
| 1 | 11 50 47 ·07 | 0 17 21 ·1 | 143 ·98 |
| 2 | 11 52 33 ·52 | 0 31 45 ·0 | 143 ·87 |
| 3 | 11 54 19 ·92 | 0 46 8 ·2 | 143 ·78 |
| 4 | 11 56 6 ·28 | 1 0 30 ·9 | 143 ·67 |
| 5 | 11 57 52 ·61 | 1 14 52 ·9 | 143 ·57 |
| 6 | 11 59 38 ·90 | 1 29 14 ·3 | 143 ·42 |
| 7 | 12 1 25 ·17 | 1 43 34 ·8 | 143 ·30 |
| 8 | 12 3 11 ·42 | 1 57 54 ·6 | 143 ·13 |
| 9 | 12 4 57 ·65 | 2 12 13 ·6 | 143 ·02 |
| 10 | 12 6 43 ·86 | 2 26 31 ·7 | 142 ·87 |
| 11 | 12 8 30 ·07 | 2 40 48 ·9 | 142 ·70 |
| 12 | 12 10 16 ·27 | 2 55 5 ·1 | 142 ·53 |
| 13 | 12 12 2 ·47 | 3 9 20 ·3 | 142 ·37 |
| 14 | 12 13 48 ·68 | 3 23 34 ·5 | 142 ·17 |
| 15 | 12 15 34 ·90 | 3 37 47 ·5 | 142 ·00 |
| 16 | 12 17 21 ·13 | 3 51 59 ·5 | 141 ·78 |
| 17 | 12 19 7 ·38 | 4 6 10 ·2 | 141 ·58 |
| 18 | 12 20 53 ·64 | 4 20 19 ·7 | 141 ·37 |
| 19 | 12 22 39 ·94 | 4 34 27 ·9 | 141 ·13 |
| 20 | 12 24 26 ·26 | 4 48 34 ·7 | 140 ·92 |
| 21 | 12 26 12 ·61 | 5 2 40 ·2 | 140 ·68 |
| 22 | 12 27 59 ·00 | 5 16 44 ·3 | 140 ·43 |
| 23 | 12 29 45 ·43 | 5 30 46 ·9 | 140 ·18 |
| 24 | 12 31 31 ·91 | S. 5 44 48 ·0 | |

| Hour. | Right Ascension. | Declination. |
|---|---|---|
| | *SUNDAY* 3. | |
| | h m s | ° ′ ″ |
| 0 | 12 31 31 ·91 | S. 5 44 48 ·0 |
| 1 | 12 33 18 ·44 | 5 58 47 ·5 |
| 2 | 12 35 5 ·02 | 6 12 45 ·5 |
| 3 | 12 36 51 ·65 | 6 26 41 ·7 |
| 4 | 12 38 38 ·35 | 6 40 36 ·3 |
| 5 | 12 40 25 ·11 | 6 54 29 ·2 |
| 6 | 12 42 11 ·95 | 7 8 20 ·2 |
| 7 | 12 43 58 ·85 | 7 22 9 ·5 |
| 8 | 12 45 45 ·84 | 7 35 56 ·8 |
| 9 | 12 47 32 ·91 | 7 49 42 ·3 |
| 10 | 12 49 20 ·06 | 8 3 25 ·7 |
| 11 | 12 51 7 ·30 | 8 17 7 ·2 |
| 12 | 12 52 54 ·63 | 8 30 46 ·6 |
| 13 | 12 54 42 ·06 | 8 44 23 ·9 |
| 14 | 12 56 29 ·59 | 8 57 59 ·1 |
| 15 | 12 58 17 ·23 | 9 11 32 ·1 |
| 16 | 13 0 4 ·97 | 9 25 2 ·8 |
| 17 | 13 1 52 ·83 | 9 38 31 ·2 |
| 18 | 13 3 40 ·80 | 9 51 57 ·3 |
| 19 | 13 5 28 ·89 | 10 5 21 ·1 |
| 20 | 13 7 17 ·10 | 10 18 42 ·4 |
| 21 | 13 9 5 ·44 | 10 32 1 ·2 |
| 22 | 13 10 53 ·90 | 10 45 17 ·5 |
| 23 | 13 12 42 ·50 | S. 10 58 31 ·2 |
| | *MONDAY* 4. | |
| 0 | 13 14 31 ·24 | S. 11 11 42 ·3 |
| 1 | 13 16 20 ·12 | 11 24 50 ·7 |
| 2 | 13 18 9 ·13 | 11 37 56 ·4 |
| 3 | 13 19 58 ·30 | 11 50 59 ·4 |
| 4 | 13 21 47 ·61 | 12 3 59 ·5 |
| 5 | 13 23 37 ·08 | 12 16 56 ·8 |
| 6 | 13 25 26 ·70 | 12 29 51 ·2 |
| 7 | 13 27 16 ·48 | 12 42 42 ·6 |
| 8 | 13 29 6 ·43 | 12 55 31 ·0 |
| 9 | 13 30 56 ·54 | 13 8 16 ·4 |
| 10 | 13 32 46 ·82 | 13 20 58 ·6 |
| 11 | 13 34 37 ·27 | 13 33 37 ·7 |
| 12 | 13 36 27 ·90 | 13 46 13 ·6 |
| 13 | 13 38 18 ·71 | 13 58 46 ·2 |
| 14 | 13 40 9 ·70 | 14 11 15 ·6 |
| 15 | 13 42 0 ·87 | 14 23 41 ·6 |
| 16 | 13 43 52 ·23 | 14 36 4 ·2 |
| 17 | 13 45 43 ·79 | 14 48 23 ·3 |
| 18 | 13 47 35 ·53 | 15 0 39 ·0 |
| 19 | 13 49 27 ·47 | 15 12 51 ·0 |
| 20 | 13 51 19 ·62 | 15 24 59 ·5 |
| 21 | 13 53 11 ·96 | 15 37 4 ·4 |
| 22 | 13 55 4 ·51 | 15 49 5 ·5 |
| 23 | 13 56 57 ·27 | 16 1 2 ·8 |
| 24 | 13 58 50 ·24 | S. 16 12 56 ·4 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 5. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 13 58 50 ·24 | S. 16 12 56 ·4 | 118 ·28 |
| 1 | 14 0 43 ·42 | 16 24 46 ·1 | 117 ·63 |
| 2 | 14 2 36 ·81 | 16 36 31 ·9 | 116 ·97 |
| 3 | 14 4 30 ·43 | 16 48 13 ·7 | 116 ·32 |
| 4 | 14 6 24 ·26 | 16 59 51 ·6 | 115 ·62 |
| 5 | 14 8 18 ·32 | 17 11 25 ·3 | 114 ·95 |
| 6 | 14 10 12 ·60 | 17 22 55 ·0 | 114 ·23 |
| 7 | 14 12 7 ·11 | 17 34 20 ·4 | 113 ·55 |
| 8 | 14 14 1 ·84 | 17 45 41 ·7 | 112 ·83 |
| 9 | 14 15 56 ·81 | 17 56 58 ·7 | 112 ·10 |
| 10 | 14 17 52 ·01 | 18 8 11 ·3 | 111 ·38 |
| 11 | 14 19 47 ·45 | 18 19 19 ·6 | 110 ·65 |
| 12 | 14 21 43 ·13 | 18 30 23 ·5 | 109 ·90 |
| 13 | 14 23 39 ·04 | 18 41 22 ·9 | 109 ·15 |
| 14 | 14 25 35 ·20 | 18 52 17 ·8 | 108 ·37 |
| 15 | 14 27 31 ·60 | 19 3 8 ·0 | 107 ·62 |
| 16 | 14 29 28 ·24 | 19 13 53 ·7 | 106 ·82 |
| 17 | 14 31 25 ·13 | 19 24 34 ·6 | 106 ·03 |
| 18 | 14 33 22 ·27 | 19 35 10 ·8 | 105 ·23 |
| 19 | 14 35 19 ·66 | 19 45 42 ·2 | 104 ·43 |
| 20 | 14 37 17 ·31 | 19 56 8 ·8 | 103 ·62 |
| 21 | 14 39 15 ·20 | 20 6 30 ·5 | 102 ·78 |
| 22 | 14 41 13 ·35 | 20 16 47 ·2 | 101 ·95 |
| 23 | 14 43 11 ·76 | S. 20 26 58 ·9 | 101 ·10 |
| | *WEDNESDAY* 6. | | |
| 0 | 14 45 10 ·42 | S. 20 37 5 ·5 | 100 ·25 |
| 1 | 14 47 9 ·34 | 20 47 7 ·0 | 99 ·40 |
| 2 | 14 49 8 ·52 | 20 57 3 ·4 | 98 ·52 |
| 3 | 14 51 7 ·97 | 21 6 54 ·5 | 97 ·65 |
| 4 | 14 53 7 ·67 | 21 16 40 ·4 | 96 ·75 |
| 5 | 14 55 7 ·64 | 21 26 20 ·9 | 95 ·85 |
| 6 | 14 57 7 ·86 | 21 35 56 ·0 | 94 ·95 |
| 7 | 14 59 8 ·36 | 21 45 25 ·7 | 94 ·05 |
| 8 | 15 1 9 ·11 | 21 54 50 ·0 | 93 ·10 |
| 9 | 15 3 10 ·13 | 22 4 8 ·6 | 92 ·18 |
| 10 | 15 5 11 ·41 | 22 13 21 ·7 | 91 ·25 |
| 11 | 15 7 12 ·96 | 22 22 29 ·2 | 90 ·28 |
| 12 | 15 9 14 ·78 | 22 31 30 ·9 | 89 ·33 |
| 13 | 15 11 16 ·86 | 22 40 26 ·9 | 88 ·37 |
| 14 | 15 13 19 ·21 | 22 49 17 ·1 | 87 ·38 |
| 15 | 15 15 21 ·83 | 22 58 1 ·4 | 86 ·40 |
| 16 | 15 17 24 ·71 | 23 6 39 ·8 | 85 ·40 |
| 17 | 15 19 27 ·86 | 23 15 12 ·2 | 84 ·40 |
| 18 | 15 21 31 ·27 | 23 23 38 ·6 | 83 ·38 |
| 19 | 15 23 34 ·95 | 23 31 58 ·9 | 82 ·38 |
| 20 | 15 25 38 ·90 | 23 40 13 ·2 | 81 ·33 |
| 21 | 15 27 43 ·11 | 23 48 21 ·2 | 80 ·30 |
| 22 | 15 29 47 ·59 | 23 56 23 ·0 | 79 ·25 |
| 23 | 15 31 52 ·33 | 24 4 18 ·5 | 78 ·20 |
| 24 | 15 33 57 ·34 | S. 24 1[illegible] [illegible] ·7 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *THURSDAY* 7. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 15 33 57 ·34 | S. 24 12 7 ·7 | 77 ·13 |
| 1 | 15 36 2 ·61 | 24 19 50 ·5 | 76 ·07 |
| 2 | 15 38 8 ·15 | 24 27 26 ·9 | 74 ·98 |
| 3 | 15 40 13 ·94 | 24 34 56 ·8 | 73 ·88 |
| 4 | 15 42 20 ·00 | 24 42 20 ·1 | 72 ·80 |
| 5 | 15 44 26 ·31 | 24 49 36 ·9 | 71 ·68 |
| 6 | 15 46 32 ·88 | 24 56 47 ·0 | 70 ·58 |
| 7 | 15 48 39 ·71 | 25 3 50 ·5 | 69 ·45 |
| 8 | 15 50 46 ·79 | 25 10 47 ·2 | 68 ·32 |
| 9 | 15 52 54 ·12 | 25 17 37 ·1 | 67 ·18 |
| 10 | 15 55 1 ·71 | 25 24 20 ·2 | 66 ·05 |
| 11 | 15 57 9 ·55 | 25 30 56 ·5 | 64 ·88 |
| 12 | 15 59 17 ·63 | 25 37 25 ·8 | 63 ·73 |
| 13 | 16 1 25 ·96 | 25 43 48 ·2 | 62 ·55 |
| 14 | 16 3 34 ·53 | 25 50 3 ·5 | 61 ·38 |
| 15 | 16 5 43 ·34 | 25 56 11 ·8 | 60 ·20 |
| 16 | 16 7 52 ·39 | 26 2 13 ·0 | 59 ·00 |
| 17 | 16 10 1 ·68 | 26 8 7 ·0 | 57 ·82 |
| 18 | 16 12 11 ·21 | 26 13 53 ·9 | 56 ·60 |
| 19 | 16 14 20 ·97 | 26 19 33 ·5 | 55 ·38 |
| 20 | 16 16 30 ·95 | 26 25 5 ·8 | 54 ·17 |
| 21 | 16 18 41 ·17 | 26 30 30 ·8 | 52 ·93 |
| 22 | 16 20 51 ·61 | 26 35 48 ·4 | 51 ·70 |
| 23 | 16 23 2 ·27 | S. 26 40 58 ·6 | 50 ·47 |
| | *FRIDAY* 8. | | |
| 0 | 16 25 13 ·15 | S. 26 46 1 ·4 | 49 ·22 |
| 1 | 16 27 24 ·25 | 26 50 56 ·7 | 47 ·95 |
| 2 | 16 29 35 ·56 | 26 55 44 ·4 | 46 ·70 |
| 3 | 16 31 47 ·08 | 27 0 24 ·6 | 45 ·42 |
| 4 | 16 33 58 ·81 | 27 4 57 ·1 | 44 ·15 |
| 5 | 16 36 10 ·74 | 27 9 22 ·0 | 42 ·87 |
| 6 | 16 38 22 ·87 | 27 13 39 ·2 | 41 ·58 |
| 7 | 16 40 35 ·19 | 27 17 48 ·7 | 40 ·28 |
| 8 | 16 42 47 ·71 | 27 21 50 ·4 | 39 ·00 |
| 9 | 16 45 0 ·41 | 27 25 44 ·4 | 37 ·68 |
| 10 | 16 47 13 ·30 | 27 29 30 ·5 | 36 ·37 |
| 11 | 16 49 26 ·37 | 27 33 8 ·7 | 35 ·05 |
| 12 | 16 51 39 ·62 | 27 36 39 ·0 | 33 ·73 |
| 13 | 16 53 53 ·04 | 27 40 1 ·4 | 32 ·40 |
| 14 | 16 56 6 ·63 | 27 43 15 ·8 | 31 ·07 |
| 15 | 16 58 20 ·38 | 27 46 22 ·2 | 29 ·73 |
| 16 | 17 0 34 ·29 | 27 49 20 ·6 | 28 ·38 |
| 17 | 17 2 48 ·36 | 27 52 10 ·9 | 27 ·05 |
| 18 | 17 5 2 ·59 | 27 54 53 ·2 | 25 ·68 |
| 19 | 17 7 16 ·96 | 27 57 27 ·3 | 24 ·33 |
| 20 | 17 9 31 ·47 | 27 59 53 ·3 | 22 ·97 |
| 21 | 17 11 46 ·12 | 28 2 11 ·1 | 21 ·60 |
| 22 | 17 14 0 ·91 | 28 4 20 ·7 | 20 ·23 |
| 23 | 17 16 15 ·83 | 28 6 22 ·1 | 18 ·87 |
| 24 | 17 18 30 ·87 | S. 28 8 15 ·3 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SATURDAY* 9. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 17 18 30 ·87 | S. 28 8 15 ·3 | 17 ·48 |
| 1 | 17 20 46 ·04 | 28 10 0 ·2 | 16 ·10 |
| 2 | 17 23 1 ·32 | 28 11 36 ·8 | 14 ·73 |
| 3 | 17 25 16 ·71 | 28 13 5 ·2 | 13 ·33 |
| 4 | 17 27 32 ·20 | 28 14 25 ·2 | 11 ·93 |
| 5 | 17 29 47 ·80 | 28 15 36 ·8 | 10 ·55 |
| 6 | 17 32 3 ·49 | 28 16 40 ·1 | 9 ·15 |
| 7 | 17 34 19 ·28 | 28 17 35 ·0 | 7 ·75 |
| 8 | 17 36 35 ·15 | 28 18 21 ·5 | 6 ·35 |
| 9 | 17 38 51 ·10 | 28 18 59 ·6 | 4 ·93 |
| 10 | 17 41 7 ·13 | 28 19 29 ·2 | 3 ·53 |
| 11 | 17 43 23 ·23 | 28 19 50 ·4 | 2 ·13 |
| 12 | 17 45 39 ·39 | 28 20 3 ·2 | 0 ·72 |
| 13 | 17 47 55 ·62 | 28 20 7 ·5 | 0 ·70 |
| 14 | 17 50 11 ·90 | 28 20 3 ·3 | 2 ·12 |
| 15 | 17 52 28 ·23 | 28 19 50 ·6 | 3 ·53 |
| 16 | 17 54 44 ·61 | 28 19 29 ·4 | 4 ·95 |
| 17 | 17 57 1 ·03 | 28 18 59 ·7 | 6 ·37 |
| 18 | 17 59 17 ·48 | 28 18 21 ·5 | 7 ·78 |
| 19 | 18 1 33 ·97 | 28 17 34 ·8 | 9 ·22 |
| 20 | 18 3 50 ·48 | 28 16 39 ·5 | 10 ·63 |
| 21 | 18 6 7 ·01 | 28 15 35 ·7 | 12 ·05 |
| 22 | 18 8 23 ·56 | 28 14 23 ·4 | 13 ·47 |
| 23 | 18 10 40 ·12 | S. 28 13 2 ·6 | 14 ·90 |
| | *SUNDAY* 10. | | |
| 0 | 18 12 56 ·69 | S. 28 11 33 ·2 | 16 ·32 |
| 1 | 18 15 13 ·26 | 28 9 55 ·3 | 17 ·75 |
| 2 | 18 17 29 ·83 | 28 8 8 ·8 | 19 ·17 |
| 3 | 18 19 46 ·38 | 28 6 13 ·8 | 20 ·58 |
| 4 | 18 22 2 ·92 | 28 4 10 ·3 | 22 ·02 |
| 5 | 18 24 19 ·45 | 28 1 58 ·2 | 23 ·43 |
| 6 | 18 26 35 ·94 | 27 59 37 ·6 | 24 ·83 |
| 7 | 18 28 52 ·41 | 27 57 8 ·6 | 26 ·28 |
| 8 | 18 31 8 ·85 | 27 54 30 ·9 | 27 ·68 |
| 9 | 18 33 25 ·25 | 27 51 44 ·8 | 29 ·10 |
| 10 | 18 35 41 ·61 | 27 48 50 ·2 | 30 ·50 |
| 11 | 18 37 57 ·92 | 27 45 47 ·2 | 31 ·93 |
| 12 | 18 40 14 ·18 | 27 42 35 ·6 | 33 ·33 |
| 13 | 18 42 30 ·38 | 27 39 15 ·6 | 34 ·75 |
| 14 | 18 44 46 ·52 | 27 35 47 ·1 | 36 ·15 |
| 15 | 18 47 2 ·60 | 27 32 10 ·2 | 37 ·55 |
| 16 | 18 49 18 ·61 | 27 28 24 ·9 | 38 ·97 |
| 17 | 18 51 34 ·54 | 27 24 31 ·1 | 40 ·35 |
| 18 | 18 53 50 ·40 | 27 20 29 ·0 | 41 ·77 |
| 19 | 18 56 6 ·17 | 27 16 18 ·4 | 43 ·15 |
| 20 | 18 58 21 ·86 | 27 11 59 ·5 | 44 ·53 |
| 21 | 19 0 37 ·47 | 27 7 32 ·3 | 45 ·93 |
| 22 | 19 2 52 ·97 | 27 2 56 ·7 | 47 ·30 |
| 23 | 19 5 8 ·38 | 26 58 12 ·9 | 48 ·70 |
| 24 | 19 7 23 ·69 | S. 26 53 20 ·7 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *MONDAY* 11. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 19 7 23 ·69 | S. 26 53 20 ·7 | 50 ·07 |
| 1 | 19 9 38 ·90 | 26 48 20 ·3 | 51 ·45 |
| 2 | 19 11 53 ·99 | 26 43 11 ·6 | 52 ·82 |
| 3 | 19 14 8 ·98 | 26 37 54 ·7 | 54 ·18 |
| 4 | 19 16 23 ·85 | 26 32 29 ·6 | 55 ·55 |
| 5 | 19 18 38 ·61 | 26 26 56 ·3 | 56 ·90 |
| 6 | 19 20 53 ·24 | 26 21 14 ·9 | 58 ·27 |
| 7 | 19 23 7 ·75 | 26 15 25 ·3 | 59 ·62 |
| 8 | 19 25 22 ·13 | 26 9 27 ·6 | 60 ·95 |
| 9 | 19 27 36 ·38 | 26 3 21 ·9 | 62 ·30 |
| 10 | 19 29 50 ·50 | 25 57 8 ·1 | 63 ·63 |
| 11 | 19 32 4 ·48 | 25 50 46 ·3 | 64 ·97 |
| 12 | 19 34 18 ·33 | 25 44 16 ·5 | 66 ·30 |
| 13 | 19 36 32 ·03 | 25 37 38 ·7 | 67 ·62 |
| 14 | 19 38 45 ·59 | 25 30 53 ·0 | 68 ·93 |
| 15 | 19 40 59 ·01 | 25 23 59 ·4 | 70 ·23 |
| 16 | 19 43 12 ·28 | 25 16 58 ·0 | 71 ·55 |
| 17 | 19 45 25 ·40 | 25 9 48 ·7 | 72 ·85 |
| 18 | 19 47 38 ·36 | 25 2 31 ·6 | 74 ·15 |
| 19 | 19 49 51 ·18 | 24 55 6 ·7 | 75 ·43 |
| 20 | 19 52 3 ·83 | 24 47 34 ·1 | 76 ·73 |
| 21 | 19 54 16 ·34 | 24 39 53 ·7 | 78 ·00 |
| 22 | 19 56 28 ·68 | 24 32 5 ·7 | 79 ·27 |
| 23 | 19 58 40 ·86 | S. 24 24 10 ·1 | 80 ·53 |
| | *TUESDAY* 12. | | |
| 0 | 20 0 52 ·88 | S. 24 16 6 ·9 | 81 ·80 |
| 1 | 20 3 4 ·74 | 24 7 56 ·1 | 83 ·05 |
| 2 | 20 5 16 ·43 | 23 59 37 ·8 | 84 ·30 |
| 3 | 20 7 27 ·96 | 23 51 12 ·0 | 85 ·53 |
| 4 | 20 9 39 ·32 | 23 42 38 ·8 | 86 ·78 |
| 5 | 20 11 50 ·52 | 23 33 58 ·1 | 88 ·00 |
| 6 | 20 14 1 ·55 | 23 25 10 ·1 | 89 ·22 |
| 7 | 20 16 12 ·41 | 23 16 14 ·8 | 90 ·45 |
| 8 | 20 18 23 ·10 | 23 7 12 ·1 | 91 ·65 |
| 9 | 20 20 33 ·62 | 22 58 2 ·2 | 92 ·85 |
| 10 | 20 22 43 ·97 | 22 48 45 ·1 | 94 ·05 |
| 11 | 20 24 54 ·14 | 22 39 20 ·8 | 95 ·23 |
| 12 | 20 27 4 ·15 | 22 29 49 ·4 | 96 ·42 |
| 13 | 20 29 13 ·98 | 22 20 10 ·9 | 97 ·60 |
| 14 | 20 31 23 ·65 | 22 10 25 ·3 | 98 ·75 |
| 15 | 20 33 33 ·14 | 22 0 32 ·8 | 99 ·93 |
| 16 | 20 35 42 ·47 | 21 50 33 ·2 | 101 ·07 |
| 17 | 20 37 51 ·62 | 21 40 26 ·8 | 102 ·22 |
| 18 | 20 40 0 ·61 | 21 30 13 ·5 | 103 ·37 |
| 19 | 20 42 9 ·42 | 21 19 53 ·3 | 104 ·48 |
| 20 | 20 44 18 ·07 | 21 9 26 ·4 | 105 ·62 |
| 21 | 20 46 26 ·55 | 20 58 52 ·7 | 106 ·73 |
| 22 | 20 48 34 ·86 | 20 48 12 ·3 | 107 ·83 |
| 23 | 20 50 43 ·01 | 20 37 25 ·3 | 108 ·95 |
| 24 | 20 52 50 ·99 | S. 20 26 31 ·6 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *WEDNESDAY* 13. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 20 52 50·99 | S. 20 26 31·6 | 110·03 |
| 1 | 20 54 58·81 | 20 15 31·4 | 111·13 |
| 2 | 20 57 6·47 | 20 4 24·6 | 112·20 |
| 3 | 20 59 13·97 | 19 53 11·4 | 113·27 |
| 4 | 21 1 21·31 | 19 41 51·8 | 114·33 |
| 5 | 21 3 28·49 | 19 30 25·8 | 115·40 |
| 6 | 21 5 35·51 | 19 18 53·4 | 116·43 |
| 7 | 21 7 42·38 | 19 7 14·8 | 117·47 |
| 8 | 21 9 49·10 | 18 55 30·0 | 118·52 |
| 9 | 21 11 55·66 | 18 43 38·9 | 119·53 |
| 10 | 21 14 2·08 | 18 31 41·7 | 120·55 |
| 11 | 21 16 8·34 | 18 19 38·4 | 121·55 |
| 12 | 21 18 14·46 | 18 7 29·1 | 122·55 |
| 13 | 21 20 20·44 | 17 55 13·8 | 123·55 |
| 14 | 21 22 26·27 | 17 42 52·5 | 124·52 |
| 15 | 21 24 31·97 | 17 30 25·4 | 125·50 |
| 16 | 21 26 37·53 | 17 17 52·4 | 126·47 |
| 17 | 21 28 42·95 | 17 5 13·6 | 127·43 |
| 18 | 21 30 48·25 | 16 52 29·0 | 128·37 |
| 19 | 21 32 53·41 | 16 39 38·8 | 129·32 |
| 20 | 21 34 58·45 | 16 26 42·9 | 130·25 |
| 21 | 21 37 3·37 | 16 13 41·4 | 131·17 |
| 22 | 21 39 8·16 | 16 0 34·4 | 132·08 |
| 23 | 21 41 12·84 | S. 15 47 21·9 | 133·00 |
| | *THURSDAY* 14. | | |
| 0 | 21 43 17·40 | S. 15 34 3·9 | 133·90 |
| 1 | 21 45 21·85 | 15 20 40·5 | 134·78 |
| 2 | 21 47 26·20 | 15 7 11·8 | 135·67 |
| 3 | 21 49 30·43 | 14 53 37·8 | 136·53 |
| 4 | 21 51 34·57 | 14 39 58·6 | 137·40 |
| 5 | 21 53 38·61 | 14 26 14·2 | 138·25 |
| 6 | 21 55 42·55 | 14 12 24·7 | 139·10 |
| 7 | 21 57 46·40 | 13 58 30·1 | 139·93 |
| 8 | 21 59 50·16 | 13 44 30·5 | 140·75 |
| 9 | 22 1 53·83 | 13 30 26·0 | 141·58 |
| 10 | 22 3 57·43 | 13 16 16·5 | 142·37 |
| 11 | 22 6 0·94 | 13 2 2·3 | 143·18 |
| 12 | 22 8 4·38 | 12 47 43·2 | 143·97 |
| 13 | 22 10 7·75 | 12 33 19·4 | 144·73 |
| 14 | 22 12 11·06 | 12 18 51·0 | 145·52 |
| 15 | 22 14 14·30 | 12 4 17·9 | 146·27 |
| 16 | 22 16 17·48 | 11 49 40·3 | 147·02 |
| 17 | 22 18 20·61 | 11 34 58·2 | 147·77 |
| 18 | 22 20 23·69 | 11 20 11·6 | 148·48 |
| 19 | 22 22 26·72 | 11 5 20·7 | 149·22 |
| 20 | 22 24 29·71 | 10 50 25·4 | 149·92 |
| 21 | 22 26 32·67 | 10 35 25·9 | 150·62 |
| 22 | 22 28 35·59 | 10 20 22·2 | 151·32 |
| 23 | 22 30 38·47 | 10 5 14·3 | 151·98 |
| 24 | 22 32 41·34 | S. 9 50 2·4 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *FRIDAY* 15. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 22 32 41·34 | S. 9 50 2·4 | 152·67 |
| 1 | 22 34 44·19 | 9 34 46·4 | 153·32 |
| 2 | 22 36 47·02 | 9 19 26·5 | 153·97 |
| 3 | 22 38 49·84 | 9 4 2·7 | 154·62 |
| 4 | 22 40 52·65 | 8 48 35·0 | 155·23 |
| 5 | 22 42 55·46 | 8 33 3·6 | 155·85 |
| 6 | 22 44 58·28 | 8 17 28·5 | 156·45 |
| 7 | 22 47 1·10 | 8 1 49·8 | 157·07 |
| 8 | 22 49 3·94 | 7 46 7·4 | 157·63 |
| 9 | 22 51 6·79 | 7 30 21·6 | 158·20 |
| 10 | 22 53 9·66 | 7 14 32·4 | 158·78 |
| 11 | 22 55 12·57 | 6 58 39·7 | 159·32 |
| 12 | 22 57 15·50 | 6 42 43·8 | 159·87 |
| 13 | 22 59 18·47 | 6 26 44·6 | 160·38 |
| 14 | 23 1 21·48 | 6 10 42·3 | 160·90 |
| 15 | 23 3 24·54 | 5 54 36·9 | 161·42 |
| 16 | 23 5 27·65 | 5 38 28·4 | 161·90 |
| 17 | 23 7 30·81 | 5 22 17·0 | 162·38 |
| 18 | 23 9 34·04 | 5 6 2·7 | 162·85 |
| 19 | 23 11 37·34 | 4 49 45·6 | 163·30 |
| 20 | 23 13 40·71 | 4 33 25·8 | 163·75 |
| 21 | 23 15 44·15 | 4 17 3·3 | 164·18 |
| 22 | 23 17 47·68 | 4 0 38·2 | 164·60 |
| 23 | 23 19 51·30 | S. 3 44 10·6 | 165·02 |
| | *SATURDAY* 16. | | |
| 0 | 23 21 55·01 | S. 3 27 40·5 | 165·40 |
| 1 | 23 23 58·83 | 3 11 8·1 | 165·80 |
| 2 | 23 26 2·74 | 2 54 33·3 | 166·15 |
| 3 | 23 28 6·77 | 2 37 56·4 | 166·52 |
| 4 | 23 30 10·92 | 2 21 17·3 | 166·85 |
| 5 | 23 32 15·18 | 2 4 36·2 | 167·18 |
| 6 | 23 34 19·58 | 1 47 53·1 | 167·50 |
| 7 | 23 36 24·10 | 1 31 8·1 | 167·80 |
| 8 | 23 38 28·76 | 1 14 21·3 | 168·08 |
| 9 | 23 40 33·57 | 0 57 32·8 | 168·35 |
| 10 | 23 42 38·52 | 0 40 42·7 | 168·62 |
| 11 | 23 44 43·63 | 0 23 51·0 | 168·87 |
| 12 | 23 46 48·90 | S. 0 6 57·8 | 169·08 |
| 13 | 23 48 54·33 | N. 0 9 56·7 | 169·32 |
| 14 | 23 50 59·93 | 0 26 52·6 | 169·50 |
| 15 | 23 53 5·71 | 0 43 49·6 | 169·68 |
| 16 | 23 55 11·67 | 1 0 47·7 | 169·87 |
| 17 | 23 57 17·82 | 1 17 46·9 | 170·02 |
| 18 | 23 59 24·17 | 1 34 47·0 | 170·15 |
| 19 | 0 1 30·72 | 1 51 47·9 | 170·28 |
| 20 | 0 3 37·47 | 2 8 49·6 | 170·38 |
| 21 | 0 5 44·43 | 2 25 51·9 | 170·48 |
| 22 | 0 7 51·61 | 2 42 54·8 | 170·55 |
| 23 | 0 9 59·02 | 2 59 58·1 | 170·62 |
| 24 | 0 12 6·65 | N. 3 17 1·8 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SUNDAY* 17. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 0 12 6·65 | N. 3 17 1·8 | 170·67 |
| 1 | 0 14 14·52 | 3 34 5·8 | 170·68 |
| 2 | 0 16 22·63 | 3 51 9·9 | 170·68 |
| 3 | 0 18 30·98 | 4 8 14·0 | 170·70 |
| 4 | 0 20 39·59 | 4 25 18·2 | 170·67 |
| 5 | 0 22 48·46 | 4 42 22·2 | 170·62 |
| 6 | 0 24 57·60 | 4 59 25·9 | 170·57 |
| 7 | 0 27 7·00 | 5 16 29·3 | 170·48 |
| 8 | 0 29 16·67 | 5 33 32·2 | 170·38 |
| 9 | 0 31 26·63 | 5 50 34·5 | 170·28 |
| 10 | 0 33 36·87 | 6 7 36·2 | 170·13 |
| 11 | 0 35 47·41 | 6 24 37·0 | 170·00 |
| 12 | 0 37 58·24 | 6 41 37·0 | 169·83 |
| 13 | 0 40 9·37 | 6 58 36·0 | 169·63 |
| 14 | 0 42 20·82 | 7 15 33·8 | 169·43 |
| 15 | 0 44 32·57 | 7 32 30·4 | 169·20 |
| 16 | 0 46 44·65 | 7 49 25·6 | 168·97 |
| 17 | 0 48 57·06 | 8 6 19·4 | 168·68 |
| 18 | 0 51 9·79 | 8 23 11·5 | 168·42 |
| 19 | 0 53 22·86 | 8 40 2·0 | 168·12 |
| 20 | 0 55 36·28 | 8 56 50·7 | 167·78 |
| 21 | 0 57 50·04 | 9 13 37·4 | 167·43 |
| 22 | 1 0 4·16 | 9 30 22·0 | 167·08 |
| 23 | 1 2 18·63 | N. 9 47 4·5 | 166·68 |
| | *MONDAY* 18. | | |
| 0 | 1 4 33·47 | N. 10 3 44·6 | 166·28 |
| 1 | 1 6 48·68 | 10 20 22·3 | 165·87 |
| 2 | 1 9 4·25 | 10 36 57·5 | 165·42 |
| 3 | 1 11 20·22 | 10 53 30·0 | 164·93 |
| 4 | 1 13 36·56 | 11 9 59·6 | 164·45 |
| 5 | 1 15 53·29 | 11 26 26·3 | 163·95 |
| 6 | 1 18 10·42 | 11 42 50·0 | 163·40 |
| 7 | 1 20 27·95 | 11 59 10·4 | 162·85 |
| 8 | 1 22 45·88 | 12 15 27·5 | 162·27 |
| 9 | 1 25 4·21 | 12 31 41·1 | 161·67 |
| 10 | 1 27 22·96 | 12 47 51·1 | 161·05 |
| 11 | 1 29 42·13 | 13 3 57·4 | 160·40 |
| 12 | 1 32 1·71 | 13 19 59·8 | 159·73 |
| 13 | 1 34 21·72 | 13 35 58·2 | 159·05 |
| 14 | 1 36 42·15 | 13 51 52·5 | 158·32 |
| 15 | 1 39 3·02 | 14 7 42·4 | 157·60 |
| 16 | 1 41 24·33 | 14 23 28·0 | 156·82 |
| 17 | 1 43 46·07 | 14 39 8·9 | 156·05 |
| 18 | 1 46 8·27 | 14 54 45·2 | 155·23 |
| 19 | 1 48 30·90 | 15 10 16·6 | 154·40 |
| 20 | 1 50 53·99 | 15 25 43·0 | 153·55 |
| 21 | 1 53 17·54 | 15 41 4·3 | 152·67 |
| 22 | 1 55 41·54 | 15 56 20·3 | 151·78 |
| 23 | 1 58 6·00 | 16 11 31·0 | 150·83 |
| 24 | 2 0 30·92 | N. 16 26 36·0 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 19. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 2 0 30·92 | N. 16 26 36·0 | 149·90 |
| 1 | 2 2 56·31 | 16 41 35·4 | 148·92 |
| 2 | 2 5 22·17 | 16 56 28·9 | 147·92 |
| 3 | 2 7 48·50 | 17 11 16·4 | 146·88 |
| 4 | 2 10 15·30 | 17 25 57·7 | 145·85 |
| 5 | 2 12 42·58 | 17 40 32·8 | 144·77 |
| 6 | 2 15 10·33 | 17 55 1·4 | 143·68 |
| 7 | 2 17 38·56 | 18 9 23·5 | 142·55 |
| 8 | 2 20 7·26 | 18 23 38·8 | 141·42 |
| 9 | 2 22 36·45 | 18 37 47·3 | 140·23 |
| 10 | 2 25 6·11 | 18 51 48·7 | 139·05 |
| 11 | 2 27 36·26 | 19 5 43·0 | 137·83 |
| 12 | 2 30 6·89 | 19 19 30·0 | 136·60 |
| 13 | 2 32 38·00 | 19 33 9·6 | 135·32 |
| 14 | 2 35 9·59 | 19 46 41·5 | 134·02 |
| 15 | 2 37 41·66 | 20 0 5·7 | 132·72 |
| 16 | 2 40 14·21 | 20 13 22·0 | 131·37 |
| 17 | 2 42 47·24 | 20 26 30·2 | 130·02 |
| 18 | 2 45 20·75 | 20 39 30·3 | 128·62 |
| 19 | 2 47 54·74 | 20 52 22·0 | 127·20 |
| 20 | 2 50 29·21 | 21 5 5·2 | 125·78 |
| 21 | 2 53 4·14 | 21 17 39·9 | 124·30 |
| 22 | 2 55 39·55 | 21 30 5·7 | 122·83 |
| 23 | 2 58 15·43 | N. 21 42 22·7 | 121·32 |
| | *WEDNESDAY* 20. | | |
| 0 | 3 0 51·78 | N. 21 54 30·6 | 119·78 |
| 1 | 3 3 28·60 | 22 6 29·3 | 118·23 |
| 2 | 3 6 5·87 | 22 18 18·7 | 116·65 |
| 3 | 3 8 43·61 | 22 29 58·6 | 115·05 |
| 4 | 3 11 21·80 | 22 41 28·9 | 113·43 |
| 5 | 3 14 0·44 | 22 52 49·5 | 111·78 |
| 6 | 3 16 39·53 | 23 4 0·2 | 110·12 |
| 7 | 3 19 19·05 | 23 15 0·9 | 108·43 |
| 8 | 3 21 59·01 | 23 25 51·5 | 106·73 |
| 9 | 3 24 39·40 | 23 36 31·9 | 104·98 |
| 10 | 3 27 20·21 | 23 47 1·8 | 103·25 |
| 11 | 3 30 1·44 | 23 57 21·3 | 101·47 |
| 12 | 3 32 43·09 | 24 7 30·1 | 99·68 |
| 13 | 3 35 25·15 | 24 17 28·2 | 97·87 |
| 14 | 3 38 7·60 | 24 27 15·4 | 96·03 |
| 15 | 3 40 50·44 | 24 36 51·6 | 94·20 |
| 16 | 3 43 33·67 | 24 46 16·8 | 92·32 |
| 17 | 3 46 17·28 | 24 55 30·7 | 90·43 |
| 18 | 3 49 1·25 | 25 4 33·3 | 88·52 |
| 19 | 3 51 45·59 | 25 13 24·4 | 86·60 |
| 20 | 3 54 30·28 | 25 22 4·0 | 84·67 |
| 21 | 3 57 15·31 | 25 30 32·0 | 82·70 |
| 22 | 4 0 0·68 | 25 38 48·2 | 80·73 |
| 23 | 4 2 46·37 | 25 46 52·6 | 78·73 |
| 24 | 4 5 32·37 | N. 25 54 45·0 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. |
|---|---|---|---|
| | *THURSDAY* 21. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 4 5 32 ·37 | N.25 54 45 ·0 | 76 ·73 |
| 1 | 4 8 18 ·69 | 26 2 25 ·4 | 74 ·72 |
| 2 | 4 11 5 ·30 | 26 9 53 ·7 | 72 ·67 |
| 3 | 4 13 52 ·20 | 26 17 9 ·7 | 70 ·63 |
| 4 | 4 16 39 ·36 | 26 24 13 ·5 | 68 ·55 |
| 5 | 4 19 26 ·79 | 26 31 4 ·8 | 66 ·50 |
| 6 | 4 22 14 ·47 | 26 37 43 ·8 | 64 ·40 |
| 7 | 4 25 2 ·39 | 26 44 10 ·2 | 62 ·30 |
| 8 | 4 27 50 ·54 | 26 50 24 ·0 | 60 ·20 |
| 9 | 4 30 38 ·90 | 26 56 25 ·2 | 58 ·07 |
| 10 | 4 33 27 ·46 | 27 2 13 ·6 | 55 ·95 |
| 11 | 4 36 16 ·22 | 27 7 49 ·3 | 53 ·80 |
| 12 | 4 39 5 ·15 | 27 13 12 ·1 | 51 ·65 |
| 13 | 4 41 54 ·25 | 27 18 22 ·0 | 49 ·48 |
| 14 | 4 44 43 ·50 | 27 23 18 ·9 | 47 ·33 |
| 15 | 4 47 32 ·88 | 27 28 2 ·9 | 45 ·15 |
| 16 | 4 50 22 ·39 | 27 32 33 ·8 | 42 ·98 |
| 17 | 4 53 12 ·02 | 27 36 51 ·7 | 40 ·80 |
| 18 | 4 56 1 ·74 | 27 40 56 ·5 | 38 ·60 |
| 19 | 4 58 51 ·54 | 27 44 48 ·1 | 36 ·43 |
| 20 | 5 1 41 ·42 | 27 48 26 ·6 | 34 ·23 |
| 21 | 5 4 31 ·35 | 27 51 52 ·0 | 32 ·02 |
| 22 | 5 7 21 ·32 | 27 55 4 ·1 | 29 ·82 |
| 23 | 5 10 11 ·32 | N.27 58 3 ·0 | 27 ·62 |
| | *FRIDAY* 22. | | |
| 0 | 5 13 1 ·34 | N.28 0 48 ·7 | 25 ·40 |
| 1 | 5 15 51 ·36 | 28 3 21 ·1 | 23 ·20 |
| 2 | 5 18 41 ·36 | 28 5 40 ·3 | 21 ·00 |
| 3 | 5 21 31 ·34 | 28 7 46 ·3 | 18 ·80 |
| 4 | 5 24 21 ·27 | 28 9 39 ·1 | 16 ·58 |
| 5 | 5 27 11 ·14 | 28 11 18 ·6 | 14 ·38 |
| 6 | 5 30 0 ·94 | 28 12 44 ·9 | 12 ·20 |
| 7 | 5 32 50 ·66 | 28 13 58 ·1 | 10 ·00 |
| 8 | 5 35 40 ·27 | 28 14 58 ·1 | 7 ·80 |
| 9 | 5 38 29 ·77 | 28 15 44 ·9 | 5 ·62 |
| 10 | 5 41 19 ·13 | 28 16 18 ·6 | 3 ·43 |
| 11 | 5 44 8 ·36 | 28 16 39 ·2 | 1 ·25 |
| 12 | 5 46 57 ·43 | 28 16 46 ·7 | 0 ·92 |
| 13 | 5 49 46 ·32 | 28 16 41 ·2 | 3 ·08 |
| 14 | 5 52 35 ·03 | 28 16 22 ·7 | 5 ·23 |
| 15 | 5 55 23 ·54 | 28 15 51 ·3 | 7 ·38 |
| 16 | 5 58 11 ·83 | 28 15 7 ·0 | 9 ·53 |
| 17 | 6 0 59 ·90 | 28 14 9 ·8 | 11 ·65 |
| 18 | 6 3 47 ·73 | 28 12 59 ·9 | 13 ·77 |
| 19 | 6 6 35 ·31 | 28 11 37 ·3 | 15 ·88 |
| 20 | 6 9 22 ·62 | 28 10 2 ·0 | 17 ·98 |
| 21 | 6 12 9 ·66 | 28 8 14 ·1 | 20 ·07 |
| 22 | 6 14 56 ·41 | 28 6 13 ·7 | 22 ·15 |
| 23 | 6 17 42 ·86 | 28 4 0 ·8 | 24 ·22 |
| 24 | 6 20 28 ·99 | N.28 1 35 ·5 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. |
|---|---|---|---|
| | *SATURDAY* 23. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 6 20 28 ·99 | N.28 1 35 ·5 | 26 ·27 |
| 1 | 6 23 14 ·80 | 27 58 57 ·9 | 28 ·30 |
| 2 | 6 26 0 ·27 | 27 56 8 ·1 | 30 ·33 |
| 3 | 6 28 45 ·39 | 27 53 6 ·1 | 32 ·33 |
| 4 | 6 31 30 ·16 | 27 49 52 ·1 | 34 ·33 |
| 5 | 6 34 14 ·55 | 27 46 26 ·1 | 36 ·32 |
| 6 | 6 36 58 ·56 | 27 42 48 ·2 | 38 ·28 |
| 7 | 6 39 42 ·18 | 27 38 58 ·5 | 40 ·22 |
| 8 | 6 42 25 ·40 | 27 34 57 ·2 | 42 ·17 |
| 9 | 6 45 8 ·21 | 27 30 44 ·2 | 44 ·08 |
| 10 | 6 47 50 ·59 | 27 26 19 ·7 | 45 ·98 |
| 11 | 6 50 32 ·55 | 27 21 43 ·8 | 47 ·87 |
| 12 | 6 53 14 ·07 | 27 16 56 ·6 | 49 ·73 |
| 13 | 6 55 55 ·14 | 27 11 58 ·2 | 51 ·58 |
| 14 | 6 58 35 ·74 | 27 6 48 ·7 | 53 ·42 |
| 15 | 7 1 15 ·89 | 27 1 28 ·2 | 55 ·22 |
| 16 | 7 3 55 ·56 | 26 55 56 ·9 | 57 ·02 |
| 17 | 7 6 34 ·76 | 26 50 14 ·8 | 58 ·78 |
| 18 | 7 9 13 ·46 | 26 44 22 ·1 | 60 ·55 |
| 19 | 7 11 51 ·68 | 26 38 18 ·8 | 62 ·30 |
| 20 | 7 14 29 ·39 | 26 32 5 ·0 | 64 ·00 |
| 21 | 7 17 6 ·61 | 26 25 41 ·0 | 65 ·70 |
| 22 | 7 19 43 ·31 | 26 19 6 ·8 | 67 ·38 |
| 23 | 7 22 19 ·49 | N.26 12 22 ·5 | 69 ·05 |
| | *SUNDAY* 24. | | |
| 0 | 7 24 55 ·15 | N.26 5 28 ·2 | 70 ·68 |
| 1 | 7 27 30 ·28 | 25 58 24 ·1 | 72 ·30 |
| 2 | 7 30 4 ·88 | 25 51 10 ·3 | 73 ·90 |
| 3 | 7 32 38 ·95 | 25 43 46 ·9 | 75 ·48 |
| 4 | 7 35 12 ·48 | 25 36 14 ·0 | 77 ·03 |
| 5 | 7 37 45 ·46 | 25 28 31 ·8 | 78 ·57 |
| 6 | 7 40 17 ·90 | 25 20 40 ·4 | 80 ·10 |
| 7 | 7 42 49 ·79 | 25 12 39 ·8 | 81 ·58 |
| 8 | 7 45 21 ·12 | 25 4 30 ·3 | 83 ·07 |
| 9 | 7 47 51 ·89 | 24 56 11 ·9 | 84 ·53 |
| 10 | 7 50 22 ·11 | 24 47 44 ·7 | 85 ·95 |
| 11 | 7 52 51 ·77 | 24 39 9 ·0 | 87 ·38 |
| 12 | 7 55 20 ·86 | 24 30 24 ·7 | 88 ·77 |
| 13 | 7 57 49 ·38 | 24 21 32 ·1 | 90 ·15 |
| 14 | 8 0 17 ·34 | 24 12 31 ·2 | 91 ·48 |
| 15 | 8 2 44 ·74 | 24 3 22 ·3 | 92 ·83 |
| 16 | 8 5 11 ·56 | 23 54 5 ·3 | 94 ·13 |
| 17 | 8 7 37 ·82 | 23 44 40 ·5 | 95 ·43 |
| 18 | 8 10 3 ·51 | 23 35 7 ·9 | 96 ·70 |
| 19 | 8 12 28 ·62 | 23 25 27 ·7 | 97 ·95 |
| 20 | 8 14 53 ·18 | 23 15 40 ·0 | 99 ·18 |
| 21 | 8 17 17 ·16 | 23 5 44 ·9 | 100 ·40 |
| 22 | 8 19 40 ·57 | 22 55 42 ·5 | 101 ·60 |
| 23 | 8 22 3 ·42 | 22 45 32 ·9 | 102 ·75 |
| 24 | 8 24 25 ·70 | N.22 35 16 ·4 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *MONDAY* 25. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 8 24 25 ·70 | N. 22 35 16 ·4 | 103 ·92 |
| 1 | 8 26 47 ·42 | 22 24 52 ·9 | 105 ·03 |
| 2 | 8 29 8 ·57 | 22 14 22 ·7 | 106 ·15 |
| 3 | 8 31 29 ·17 | 22 3 45 ·8 | 107 ·23 |
| 4 | 8 33 49 ·20 | 21 53 2 ·4 | 108 ·32 |
| 5 | 8 36 8 ·68 | 21 42 12 ·5 | 109 ·37 |
| 6 | 8 38 27 ·60 | 21 31 16 ·3 | 110 ·40 |
| 7 | 8 40 45 ·97 | 21 20 13 ·9 | 111 ·42 |
| 8 | 8 43 3 ·79 | 21 9 5 ·4 | 112 ·40 |
| 9 | 8 45 21 ·05 | 20 57 51 ·0 | 113 ·38 |
| 10 | 8 47 37 ·77 | 20 46 30 ·7 | 114 ·33 |
| 11 | 8 49 53 ·95 | 20 35 4 ·7 | 115 ·28 |
| 12 | 8 52 9 ·58 | 20 23 33 ·0 | 116 ·20 |
| 13 | 8 54 24 ·68 | 20 11 55 ·8 | 117 ·08 |
| 14 | 8 56 39 ·24 | 20 0 13 ·3 | 117 ·98 |
| 15 | 8 58 53 ·27 | 19 48 25 ·4 | 118 ·85 |
| 16 | 9 1 6 ·78 | 19 36 32 ·3 | 119 ·68 |
| 17 | 9 3 19 ·77 | 19 24 34 ·2 | 120 ·53 |
| 18 | 9 5 32 ·23 | 19 12 31 ·0 | 121 ·33 |
| 19 | 9 7 44 ·18 | 19 0 23 ·0 | 122 ·13 |
| 20 | 9 9 55 ·61 | 18 48 10 ·2 | 122 ·92 |
| 21 | 9 12 6 ·54 | 18 35 52 ·7 | 123 ·68 |
| 22 | 9 14 16 ·97 | 18 23 30 ·6 | 124 ·43 |
| 23 | 9 16 26 ·90 | N. 18 11 4 ·0 | 125 ·15 |
| | *TUESDAY* 26. | | |
| 0 | 9 18 36 ·33 | N. 17 58 33 ·1 | 125 ·87 |
| 1 | 9 20 45 ·27 | 17 45 57 ·9 | 126 ·58 |
| 2 | 9 22 53 ·73 | 17 33 18 ·4 | 127 ·25 |
| 3 | 9 25 1 ·71 | 17 20 34 ·9 | 127 ·92 |
| 4 | 9 27 9 ·21 | 17 7 47 ·4 | 128 ·58 |
| 5 | 9 29 16 ·24 | 16 54 55 ·9 | 129 ·20 |
| 6 | 9 31 22 ·81 | 16 42 0 ·7 | 129 ·82 |
| 7 | 9 33 28 ·91 | 16 29 1 ·8 | 130 ·43 |
| 8 | 9 35 34 ·56 | 16 15 59 ·2 | 131 ·02 |
| 9 | 9 37 39 ·75 | 16 2 53 ·1 | 131 ·60 |
| 10 | 9 39 44 ·50 | 15 49 43 ·5 | 132 ·15 |
| 11 | 9 41 48 ·80 | 15 36 30 ·6 | 132 ·70 |
| 12 | 9 43 52 ·67 | 15 23 14 ·4 | 133 ·23 |
| 13 | 9 45 56 ·11 | 15 9 55 ·0 | 133 ·73 |
| 14 | 9 47 59 ·12 | 14 56 32 ·6 | 134 ·25 |
| 15 | 9 50 1 ·71 | 14 43 7 ·1 | 134 ·73 |
| 16 | 9 52 3 ·88 | 14 29 38 ·7 | 135 ·22 |
| 17 | 9 54 5 ·64 | 14 16 7 ·4 | 135 ·67 |
| 18 | 9 56 7 ·00 | 14 2 33 ·4 | 136 ·12 |
| 19 | 9 58 7 ·96 | 13 48 56 ·7 | 136 ·57 |
| 20 | 10 0 8 ·52 | 13 35 17 ·3 | 136 ·98 |
| 21 | 10 2 8 ·70 | 13 21 35 ·4 | 137 ·40 |
| 22 | 10 4 8 ·49 | 13 7 51 ·0 | 137 ·78 |
| 23 | 10 6 7 ·91 | 12 54 4 ·3 | 138 ·18 |
| 24 | 10 8 6 ·95 | N. 12 40 15 ·2 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *WEDNESDAY* 27. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 10 8 6 ·95 | N. 12 40 15 ·2 | 138 ·53 |
| 1 | 10 10 5 ·63 | 12 26 23 ·9 | 138 ·[illegible] |
| 2 | 10 12 3 ·95 | 12 12 30 ·4 | 139 ·27 |
| 3 | 10 14 1 ·91 | 11 58 34 ·8 | 139 ·62 |
| 4 | 10 15 59 ·52 | 11 44 37 ·1 | 139 ·93 |
| 5 | 10 17 56 ·79 | 11 30 37 ·5 | 140 ·25 |
| 6 | 10 19 53 ·72 | 11 16 36 ·0 | 140 ·55 |
| 7 | 10 21 50 ·32 | 11 2 32 ·7 | 140 ·85 |
| 8 | 10 23 46 ·59 | 10 48 27 ·6 | 141 ·12 |
| 9 | 10 25 42 ·54 | 10 34 20 ·9 | 141 ·40 |
| 10 | 10 27 38 ·17 | 10 20 12 ·5 | 141 ·67 |
| 11 | 10 29 33 ·49 | 10 6 2 ·5 | 141 ·90 |
| 12 | 10 31 28 ·51 | 9 51 51 ·1 | 142 ·13 |
| 13 | 10 33 23 ·23 | 9 37 38 ·2 | 142 ·37 |
| 14 | 10 35 17 ·65 | 9 23 24 ·0 | 142 ·60 |
| 15 | 10 37 11 ·78 | 9 9 8 ·4 | 142 ·80 |
| 16 | 10 39 5 ·63 | 8 54 51 ·6 | 142 ·98 |
| 17 | 10 40 59 ·20 | 8 40 33 ·7 | 143 ·18 |
| 18 | 10 42 52 ·50 | 8 26 14 ·6 | 143 ·37 |
| 19 | 10 44 45 ·53 | 8 11 54 ·4 | 143 ·53 |
| 20 | 10 46 38 ·30 | 7 57 33 ·2 | 143 ·70 |
| 21 | 10 48 30 ·82 | 7 43 11 ·0 | 143 ·83 |
| 22 | 10 50 23 ·09 | 7 28 48 ·0 | 143 ·98 |
| 23 | 10 52 15 ·11 | N. 7 14 24 ·1 | 144 ·10 |
| | *THURSDAY* 28. | | |
| 0 | 10 54 6 ·90 | N. 6 59 59 ·5 | 144 ·23 |
| 1 | 10 55 58 ·46 | 6 45 34 ·1 | 144 ·33 |
| 2 | 10 57 49 ·79 | 6 31 8 ·1 | 144 ·45 |
| 3 | 10 59 40 ·89 | 6 16 41 ·4 | 144 ·53 |
| 4 | 11 1 31 ·79 | 6 2 14 ·2 | 144 ·63 |
| 5 | 11 3 22 ·46 | 5 47 46 ·4 | 144 ·70 |
| 6 | 11 5 12 ·94 | 5 33 18 ·2 | 144 ·77 |
| 7 | 11 7 3 ·21 | 5 18 49 ·6 | 144 ·83 |
| 8 | 11 8 53 ·29 | 5 4 20 ·6 | 144 ·88 |
| 9 | 11 10 43 ·18 | 4 49 51 ·3 | 144 ·92 |
| 10 | 11 12 32 ·88 | 4 35 21 ·8 | 144 ·95 |
| 11 | 11 14 22 ·40 | 4 20 52 ·1 | 144 ·98 |
| 12 | 11 16 11 ·75 | 4 6 22 ·2 | 145 ·00 |
| 13 | 11 18 0 ·93 | 3 51 52 ·2 | 145 ·00 |
| 14 | 11 19 49 ·95 | 3 37 22 ·2 | 145 ·02 |
| 15 | 11 21 38 ·81 | 3 22 52 ·1 | 145 ·00 |
| 16 | 11 23 27 ·51 | 3 8 22 ·1 | 144 ·98 |
| 17 | 11 25 16 ·07 | 2 53 52 ·2 | 144 ·97 |
| 18 | 11 27 4 ·49 | 2 39 22 ·4 | 144 ·93 |
| 19 | 11 28 52 ·77 | 2 24 52 ·8 | 144 ·90 |
| 20 | 11 30 40 ·91 | 2 10 23 ·4 | 144 ·87 |
| 21 | 11 32 28 ·93 | 1 55 54 ·2 | 144 ·80 |
| 22 | 11 34 16 ·83 | 1 41 25 ·4 | 144 ·73 |
| 23 | 11 36 4 ·62 | 1 26 57 ·0 | 144 ·68 |
| 24 | 11 37 52 ·29 | N. 1 12 28 ·9 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. | Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|---|---|---|---|
| | *FRIDAY* 29. | | | | *SATURDAY* 30. | | |
| | h m s | ° ′ ″ | ″ | | h m s | ° ′ ″ | ″ |
| | 11 37 52 ·29 | N. 1 12 28 ·9 | 144 ·60 | 0 | 12 20 35 ·88 | S. 4 30 51 ·8 | 140 ·68 |
| | 11 39 39 ·86 | 0 58 1 ·3 | 144 ·53 | 1 | 12 22 22 ·36 | 4 44 55 ·9 | 140 ·42 |
| | 11 41 27 ·32 | 0 43 34 ·1 | 144 ·43 | 2 | 12 24 8 ·86 | 4 58 58 ·4 | 140 ·17 |
| | 11 43 14 ·69 | 0 29 7 ·5 | 144 ·33 | 3 | 12 25 55 ·37 | 5 12 59 ·4 | 139 ·90 |
| | 11 45 1 ·97 | 0 14 41 ·5 | 144 ·23 | 4 | 12 27 41 ·91 | 5 26 58 ·8 | 139 ·63 |
| | 11 46 49 ·16 | N. 0 0 16 ·1 | 144 ·13 | 5 | 12 29 28 ·47 | 5 40 56 ·6 | 139 ·37 |
| | 11 48 36 ·27 | S. 0 14 8 ·7 | 144 ·00 | 6 | 12 31 15 ·07 | 5 54 52 ·8 | 139 ·07 |
| | 11 50 23 ·30 | 0 28 32 ·7 | 143 ·88 | 7 | 12 33 1 ·70 | 6 8 47 ·2 | 138 ·78 |
| | 11 52 10 ·27 | 0 42 56 ·0 | 143 ·75 | 8 | 12 34 48 ·37 | 6 22 39 ·9 | 138 ·48 |
| | 11 53 57 ·16 | 0 57 18 ·5 | 143 ·62 | 9 | 12 36 35 ·09 | 6 36 30 ·8 | 138 ·17 |
| | 11 55 44 ·00 | 1 11 40 ·2 | 143 ·47 | 10 | 12 38 21 ·85 | 6 50 19 ·8 | 137 ·87 |
| | 11 57 30 ·78 | 1 26 0 ·9 | 143 ·32 | 11 | 12 40 8 ·67 | 7 4 7 ·0 | 137 ·55 |
| | 11 59 17 ·50 | 1 40 20 ·8 | 143 ·15 | 12 | 12 41 55 ·55 | 7 17 52 ·3 | 137 ·23 |
| | 12 1 4 ·18 | 1 54 39 ·7 | 142 ·98 | 13 | 12 43 42 ·49 | 7 31 35 ·7 | 136 ·88 |
| | 12 2 50 ·81 | 2 8 57 ·6 | 142 ·80 | 14 | 12 45 29 ·49 | 7 45 17 ·0 | 136 ·55 |
| | 12 4 37 ·41 | 2 23 14 ·4 | 142 ·62 | 15 | 12 47 16 ·57 | 7 58 56 ·3 | 136 ·22 |
| | 12 6 23 ·98 | 2 37 30 ·1 | 142 ·45 | 16 | 12 49 3 ·72 | 8 12 33 ·6 | 135 ·85 |
| | 12 8 10 ·51 | 2 51 44 ·8 | 142 ·23 | 17 | 12 50 50 ·95 | 8 26 8 ·7 | 135 ·50 |
| | 12 9 57 ·03 | 3 5 58 ·2 | 142 ·03 | 18 | 12 52 38 ·27 | 8 39 41 ·7 | 135 ·12 |
| | 12 11 43 ·52 | 3 20 10 ·4 | 141 ·83 | 19 | 12 54 25 ·67 | 8 53 12 ·4 | 134 ·77 |
| | 12 13 30 ·00 | 3 34 21 ·4 | 141 ·60 | 20 | 12 56 13 ·17 | 9 6 41 ·0 | 134 ·37 |
| | 12 15 16 ·48 | 3 48 31 ·0 | 141 ·38 | 21 | 12 58 0 ·76 | 9 20 7 ·2 | 133 ·98 |
| | 12 17 2 ·94 | 4 2 39 ·3 | 141 ·17 | 22 | 12 59 48 ·45 | 9 33 31 ·1 | 133 ·58 |
| | 12 18 49 ·41 | 4 16 46 ·3 | 140 ·92 | 23 | 13 1 36 ·24 | 9 46 52 ·6 | 133 ·18 |
| | 12 20 35 ·88 | S. 4 30 51 ·8 | | 24 | 13 3 24 ·14 | S. 10 0 11 ·7 | |

## PHASES OF THE MOON.

| | d h m |
|---|---|
| ● New Moon | 5 20 11 ·4 |
| ☽ *First Quarter* | 13 21 12 ·8 |
| ○ Full Moon | 20 14 13 ·2 |
| ☾ *Last Quarter* | 27 10 25 ·9 |

| | d h |
|---|---|
| ☾ Apogee | 6 3 |
| ☾ Perigee | 20 7 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III$^h$. | P.L. of diff. | VI$^h$. | P.L. of diff. | IX$^h$. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ |
| 1 | Pollux | W. | 54 37 50 | 2919 | 56 9 45 | 2928 | 57 41 29 | 2935 | 59 13 |
| | Regulus | W. | 17 45 24 | 2920 | 19 17 18 | 2928 | 20 49 2 | 2935 | 22 20 |
| | Sun | E. | 53 3 19 | 3302 | 51 39 10 | 3313 | 50 15 13 | 3323 | 48 51 |
| 2 | Pollux | W. | 66 48 31 | 2979 | 68 19 10 | 2985 | 69 49 42 | 2991 | 71 20 |
| | Regulus | W. | 29 56 15 | 2976 | 31 26 58 | 2982 | 32 57 33 | 2989 | 34 28 |
| | Sun | E. | 41 55 23 | 3378 | 40 32 41 | 3386 | 39 10 9 | 3395 | 37 47 |
| 3 | Pollux | W. | 78 50 26 | 3022 | 80 20 11 | 3026 | 81 49 51 | 3031 | 83 19 |
| | Regulus | W. | 41 58 37 | 3019 | 43 28 26 | 3024 | 44 58 9 | 3028 | 46 27 |
| 8 | Sun | W. | 23 57 23 | 3517 | 25 17 28 | 3507 | 26 37 44 | 3498 | 27 58 |
| | Fomalhaut | E. | 81 24 43 | 3336 | 80 1 13 | 3336 | 78 37 43 | 3336 | 77 14 |
| | α Pegasi | E. | 103 19 16 | 3307 | 101 55 12 | 3301 | 100 31 1 | 3296 | 99 6 |
| 9 | Sun | W. | 34 42 29 | 3453 | 36 3 46 | 3446 | 37 25 11 | 3439 | 38 46 |
| | Saturn | W. | 12 48 11 | 3664 | 14 5 36 | 3549 | 15 25 6 | 3462 | 16 46 |
| | Fomalhaut | E. | 70 16 54 | 3342 | 68 53 31 | 3343 | 67 30 9 | 3345 | 66 6 |
| | α Pegasi | E. | 92 3 53 | 3266 | 90 39 2 | 3262 | 89 14 6 | 3257 | 87 49 |
| 10 | Sun | W. | 45 36 36 | 3392 | 46 59 2 | 3385 | 48 21 36 | 3375 | 49 44 |
| | Saturn | W. | 23 47 1 | 3198 | 25 13 12 | 3173 | 26 39 53 | 3151 | 28 7 |
| | Fomalhaut | E. | 59 11 13 | 3369 | 57 48 21 | 3375 | 56 25 36 | 3382 | 55 2 |
| | α Pegasi | E. | 80 42 34 | 3230 | 79 17 0 | 3225 | 77 51 21 | 3221 | 76 25 |
| 11 | Sun | W. | 56 40 42 | 3319 | 58 4 32 | 3307 | 59 28 35 | 3297 | 60 52 |
| | Saturn | W. | 35 28 11 | 3048 | 36 57 25 | 3032 | 38 26 58 | 3017 | 39 56 |
| | Mars | W. | 16 10 6 | 3312 | 17 34 4 | 3286 | 18 58 32 | 3263 | 20 23 |
| | Fomalhaut | E. | 48 12 43 | 3452 | 46 51 25 | 3470 | 45 30 27 | 3490 | 44 9 |
| | α Pegasi | E. | 69 15 45 | 3198 | 67 49 33 | 3194 | 66 23 17 | 3192 | 64 56 |
| | α Arietis | E. | 110 49 4 | 2952 | 109 17 51 | 2943 | 107 46 26 | 2932 | 106 14 |
| 12 | Sun | W. | 67 57 32 | 3224 | 69 23 13 | 3211 | 70 49 9 | 3198 | 72 15 |
| | Saturn | W. | 47 30 28 | 2932 | 49 2 6 | 2918 | 50 34 2 | 2904 | 52 6 |
| | Mars | W. | 27 33 42 | 3153 | 29 0 47 | 3138 | 30 28 11 | 3121 | 31 55 |
| | Fomalhaut | E. | 37 34 45 | 3694 | 36 17 51 | 3747 | 35 1 54 | 3811 | 33 47 |
| | α Pegasi | E. | 57 44 41 | 3182 | 56 18 10 | 3183 | 54 51 40 | 3184 | 53 25 |
| | α Arietis | E. | 98 33 13 | 2865 | 97 0 9 | 2854 | 95 26 51 | 2841 | 93 53 |
| 13 | Sun | W. | 79 30 41 | 3109 | 80 58 40 | 3093 | 82 26 58 | 3077 | 83 55 |
| | Saturn | W. | 59 52 15 | 2812 | 61 26 27 | 2797 | 63 0 59 | 2781 | 64 35 |
| | Mars | W. | 39 19 29 | 3023 | 40 49 13 | 3007 | 42 19 17 | 2990 | 43 49 |
| | α Pegasi | E. | 46 14 8 | 3222 | 44 48 25 | 3236 | 43 22 58 | 3252 | 41 57 |
| | α Arietis | E. | 86 1 6 | 2760 | 84 25 45 | 2746 | 82 50 6 | 2731 | 81 14 |
| 14 | Sun | W. | 91 23 59 | 2974 | 92 54 44 | 2956 | 94 25 52 | 2938 | 95 57 |
| | Saturn | W. | 72 35 42 | 2681 | 74 12 48 | 2663 | 75 50 17 | 2646 | 77 28 |
| | Mars | W. | 51 27 18 | 2884 | 52 59 57 | 2866 | 54 33 0 | 2847 | 56 6 |
| | α Pegasi | E. | 34 59 54 | 3453 | 33 38 37 | 3512 | 32 18 26 | 3583 | 30 59 |
| | α Arietis | E. | 73 9 7 | 2638 | 71 31 3 | 2621 | 69 52 37 | 2605 | 68 13 |
| | Aldebaran | E. | 104 25 56 | 2690 | 102 49 3 | 2672 | 101 11 46 | 2654 | 99 34 |
| 15 | Sun | W. | 103 40 53 | 2825 | 105 14 48 | 2806 | 106 49 8 | 2787 | 108 23 |
| | Saturn | W. | 85 43 38 | 2539 | 87 23 57 | 2520 | 89 4 42 | 2502 | 90 45 |
| | Mars | W. | 63 59 46 | 2734 | 65 35 41 | 2715 | 67 12 1 | 2695 | 68 48 |

## MEAN TIME.

### LUNAR DISTANCES.

| 's Name and sition. | | Midnight. | P. L. of diff. | XV h. | P. L. of diff. | XVIII h. | P. L. of diff. | XXI h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| x | W. | 60 44 27 | 2951 | 62 15 41 | 2958 | 63 46 46 | 2965 | 65 17 43 | 2972 |
| lus | W. | 23 52 2 | 2950 | 25 23 18 | 2956 | 26 54 26 | 2963 | 28 25 25 | 2970 |
| | E. | 47 27 53 | 3342 | 46 4 30 | 3351 | 44 41 17 | 3360 | 43 18 15 | 3369 |
| x | W. | 72 50 23 | 3002 | 74 20 33 | 3007 | 75 50 37 | 3013 | 77 20 34 | 3017 |
| lus | W. | 35 58 21 | 3000 | 37 28 34 | 3005 | 38 58 41 | 3009 | 40 28 42 | 3014 |
| | E. | 36 25 35 | 3412 | 35 3 32 | 3421 | 33 41 39 | 3429 | 32 19 55 | 3438 |
| x | W. | 84 48 55 | 3039 | 86 18 19 | 3042 | 87 47 40 | 3046 | 89 16 56 | 3049 |
| lus | W. | 47 57 21 | 3035 | 49 26 50 | 3039 | 50 56 14 | 3043 | 52 25 34 | 3046 |
| | W. | 29 18 44 | 3482 | 30 39 28 | 3475 | 32 0 20 | 3467 | 33 21 21 | 3461 |
| ılhaut | E. | 75 50 43 | 3337 | 74 27 14 | 3338 | 73 3 46 | 3339 | 71 40 19 | 3340 |
| ɣasi | E. | 97 42 21 | 3286 | 96 17 53 | 3281 | 94 53 19 | 3276 | 93 28 39 | 3271 |
| | W. | 40 8 26 | 3424 | 41 30 15 | 3416 | 42 52 13 | 3408 | 44 14 20 | 3401 |
| n | W. | 18 8 37 | 3339 | 19 32 4 | 3294 | 20 56 22 | 3258 | 22 21 23 | 3226 |
| ılhaut | E. | 64 43 34 | 3352 | 63 20 22 | 3355 | 61 57 14 | 3359 | 60 34 11 | 3364 |
| ɣasi | E. | 86 23 56 | 3248 | 84 58 43 | 3244 | 83 33 26 | 3239 | 82 8 3 | 3234 |
| | W. | 51 7 16 | 3358 | 52 30 21 | 3349 | 53 53 36 | 3339 | 55 17 3 | 3328 |
| n | W. | 29 34 33 | 3113 | 31 2 27 | 3096 | 32 30 42 | 3079 | 33 59 17 | 3064 |
| ılhaut | E. | 53 40 32 | 3400 | 52 18 15 | 3410 | 50 56 10 | 3423 | 49 34 19 | 3436 |
| ɣasi | E. | 74 59 48 | 3213 | 73 33 54 | 3209 | 72 7 55 | 3205 | 70 41 52 | 3202 |
| | W. | 62 17 19 | 3274 | 63 42 1 | 3262 | 65 6 57 | 3250 | 66 32 7 | 3237 |
| n | W. | 41 26 57 | 2989 | 42 57 23 | 2976 | 44 28 6 | 2961 | 45 59 8 | 2946 |
| | W. | 21 48 47 | 3223 | 23 14 29 | 3204 | 24 40 33 | 3187 | 26 6 57 | 3170 |
| ılhaut | E. | 42 49 42 | 3541 | 41 30 3 | 3571 | 40 10 57 | 3606 | 38 52 29 | 3647 |
| ɣasi | E. | 63 30 35 | 3186 | 62 4 9 | 3183 | 60 37 40 | 3182 | 59 11 10 | 3183 |
| etis | E. | 104 42 57 | 2911 | 103 10 52 | 2901 | 101 38 34 | 2889 | 100 6 1 | 2877 |
| | W. | 73 41 50 | 3169 | 75 8 36 | 3154 | 76 35 40 | 3140 | 78 3 1 | 3124 |
| n | W. | 53 38 49 | 2873 | 55 11 42 | 2859 | 56 44 53 | 2844 | 58 18 24 | 2828 |
| | W. | 33 23 58 | 3089 | 34 52 21 | 3073 | 36 21 3 | 3056 | 37 50 6 | 3040 |
| ılhaut | E. | 32 33 27 | 3969 | 31 21 17 | 4069 | 30 10 45 | 4185 | 29 2 5 | 4327 |
| ɣasi | E. | 51 58 46 | 3190 | 50 32 25 | 3195 | 49 6 10 | 3203 | 47 40 4 | 3211 |
| etis | E. | 92 19 25 | 2815 | 90 45 16 | 2802 | 89 10 51 | 2788 | 87 36 7 | 2775 |
| | W. | 85 24 35 | 3043 | 86 53 54 | 3026 | 88 23 34 | 3009 | 89 53 35 | 2991 |
| n | W. | 66 11 6 | 2748 | 67 46 42 | 2732 | 69 22 39 | 2715 | 70 58 59 | 2698 |
| | W. | 45 20 29 | 2955 | 46 51 38 | 2938 | 48 23 9 | 2920 | 49 55 2 | 2902 |
| ɣasi | E. | 40 33 6 | 3297 | 39 8 51 | 3326 | 37 45 10 | 3360 | 36 22 8 | 3402 |
| etis | E. | 79 37 48 | 2701 | 78 1 9 | 2685 | 76 24 9 | 2670 | 74 46 49 | 2654 |
| | W. | 97 29 17 | 2901 | 99 1 35 | 2882 | 100 34 17 | 2863 | 102 7 23 | 2845 |
| n | W. | 79 6 27 | 2610 | 80 45 8 | 2593 | 82 24 13 | 2575 | 84 3 43 | 2556 |
| | W. | 57 40 17 | 2810 | 59 14 32 | 2791 | 60 49 12 | 2772 | 62 24 17 | 2753 |
| ɣasi | E. | 29 42 13 | 3773 | 28 26 43 | 3898 | 27 13 21 | 4050 | 26 2 31 | 4232 |
| etis | E. | 66 34 38 | 2572 | 64 55 5 | 2555 | 63 15 8 | 2538 | 61 34 48 | 2522 |
| ɔaraṅ | E. | 97 55 59 | 2618 | 96 17 29 | 2601 | 94 38 35 | 2583 | 92 59 16 | 2565 |
| | W. | 109 59 3 | 2749 | 111 34 38 | 2730 | 113 10 38 | 2711 | 114 47 4 | 2692 |
| n | W. | 92 27 29 | 2465 | 94 9 31 | 2448 | 95 51 58 | 2430 | 97 34 50 | 2412 |
| | W | 70 26 0 | 2656 | 72 3 39 | 2637 | 73 41 43 | 2618 | 75 20 14 | 2599 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P. L. of diff. | III h. | P. L. of diff. | VI h. | P. L. of diff. | IX h. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ |
| 15 | α Arietis | E. | 59 54 6 | 2505 | 58 12 59 | 2489 | 56 31 30 | 2471 | 54 49 |
| | Aldebaran | E. | 91 19 33 | 2546 | 89 39 24 | 2529 | 87 58 51 | 2511 | 86 17 |
| 16 | Sun | W. | 116 23 55 | 2673 | 118 1 11 | 2655 | 119 38 52 | 2636 | 121 16 |
| | Saturn | W. | 99 18 8 | 2394 | 101 1 52 | 2375 | 102 46 2 | 2358 | 104 30 |
| | Mars | W. | 76 59 11 | 2580 | 78 38 34 | 2561 | 80 18 23 | 2541 | 81 58 |
| | α Aquilæ | W. | 55 52 1 | 3513 | 57 12 11 | 3447 | 58 33 34 | 3387 | 59 56 |
| | α Arietis | E. | 46 14 23 | 2375 | 44 30 13 | 2360 | 42 45 41 | 2346 | 41 0 |
| | Aldebaran | E. | 77 46 51 | 2406 | 76 3 25 | 2390 | 74 19 36 | 2373 | 72 35 |
| 17 | Sun | W. | 129 33 33 | 2532 | 131 14 2 | 2516 | 132 54 53 | 2501 | 134 36 |
| | Mars | W. | 90 26 20 | 2433 | 92 9 8 | 2416 | 93 52 20 | 2400 | 95 35 |
| | α Aquilæ | W. | 67 3 51 | 3096 | 68 32 6 | 3057 | 70 1 8 | 3022 | 71 30 |
| | Fomalhaut | W. | 39 10 37 | 2918 | 40 42 33 | 2850 | 42 15 56 | 2789 | 43 50 |
| | α Arietis | E. | 32 11 54 | 2279 | 30 25 24 | 2272 | 28 38 44 | 2270 | 26 52 |
| | Aldebaran | E. | 63 48 39 | 2283 | 62 2 15 | 2270 | 60 15 32 | 2258 | 58 28 |
| | Pollux | E. | 106 34 48 | 2196 | 104 46 15 | 2179 | 102 57 16 | 2163 | 101 7 |
| 18 | Mars | W. | 104 19 30 | 2309 | 106 5 16 | 2296 | 107 51 21 | 2284 | 109 37 |
| | α Aquilæ | W. | 79 9 29 | 2851 | 80 42 51 | 2831 | 82 16 39 | 2811 | 83 50 |
| | Fomalhaut | W. | 52 0 55 | 2516 | 53 41 46 | 2483 | 55 23 23 | 2453 | 57 5 |
| | α Pegasi | W. | 31 29 6 | 3038 | 32 58 32 | 2932 | 34 30 10 | 2840 | 36 3 |
| | Aldebaran | E. | 49 29 40 | 2204 | 47 41 19 | 2200 | 45 52 52 | 2197 | 44 4 |
| | Pollux | E. | 91 55 22 | 2078 | 90 3 49 | 2065 | 88 11 56 | 2053 | 86 19 |
| 19 | α Aquilæ | W. | 91 46 37 | 2741 | 93 22 23 | 2736 | 94 58 15 | 2734 | 96 34 |
| | Fomalhaut | W. | 65 46 24 | 2316 | 67 32 0 | 2300 | 69 18 0 | 2285 | 71 4 |
| | α Pegasi | W. | 44 14 24 | 2483 | 45 56 1 | 2445 | 47 38 32 | 2411 | 49 21 |
| | Aldebaran | E. | 35 2 30 | 2231 | 33 14 48 | 2249 | 31 27 34 | 2273 | 29 40 |
| | Pollux | E. | 76 54 40 | 1995 | 75 0 58 | 1988 | 73 7 4 | 1981 | 71 12 |
| | Regulus | E. | 113 45 33 | 1990 | 111 51 43 | 1982 | 109 57 41 | 1976 | 108 3 |
| 20 | Fomalhaut | W. | 80 0 5 | 2232 | 81 47 45 | 2228 | 83 35 31 | 2226 | 85 23 |
| | α Pegasi | W. | 58 7 48 | 2276 | 59 54 23 | 2263 | 61 41 17 | 2252 | 63 28 |
| | α Arietis | W. | 14 30 49 | 2314 | 16 16 28 | 2239 | 18 3 57 | 2186 | 19 52 |
| | Pollux | E. | 61 40 49 | 1959 | 59 46 10 | 1958 | 57 51 29 | 1958 | 55 56 |
| | Regulus | E. | 98 30 37 | 1953 | 96 35 48 | 1952 | 94 40 58 | 1952 | 92 46 |
| 21 | Fomalhaut | W. | 94 21 59 | 2243 | 96 9 23 | 2249 | 97 56 37 | 2258 | 99 43 |
| | α Pegasi | W. | 72 26 56 | 2222 | 74 14 51 | 2223 | 76 2 45 | 2225 | 77 50 |
| | α Arietis | W. | 29 7 24 | 2063 | 30 59 21 | 2059 | 32 51 24 | 2056 | 34 43 |
| | Pollux | E. | 46 24 20 | 1977 | 44 30 10 | 1984 | 42 36 10 | 1990 | 40 42 |
| | Regulus | E. | 83 12 38 | 1967 | 81 18 12 | 1973 | 79 23 56 | 1980 | 77 29 |
| 22 | α Pegasi | W. | 86 47 48 | 2266 | 88 34 38 | 2277 | 90 21 12 | 2289 | 92 7 |
| | α Arietis | W. | 44 3 11 | 2080 | 45 54 41 | 2088 | 47 45 58 | 2098 | 49 37 |
| | Aldebaran | W. | 15 56 17 | 3150 | 17 23 26 | 2951 | 18 54 40 | 2805 | 20 29 |
| | Pollux | E. | 31 16 52 | 2052 | 29 24 39 | 2066 | 27 32 48 | 2082 | 25 41 |
| | Regulus | E. | 68 2 30 | 2034 | 66 9 49 | 2045 | 64 17 25 | 2057 | 62 25 |
| | Venus | E. | 115 35 54 | 2260 | 113 48 56 | 2275 | 112 2 19 | 2288 | 110 16 |
| 23 | α Arietis | W. | 58 47 47 | 2173 | 60 36 56 | 2186 | 62 25 44 | 2202 | 64 14 |
| | Aldebaran | W. | 28 46 44 | 2457 | 30 28 58 | 2440 | 32 11 36 | 2429 | 33 54 |
| | Regulus | E. | 53 10 4 | 2141 | 51 20 8 | 2157 | 49 30 36 | 2174 | 47 41 |

## MEAN TIME.

### LUNAR DISTANCES.

| ar's Name and Position. | | Midnight. | P. L. of diff. | XV h. | P. L. of diff. | XVIII h. | P. L. of diff. | XXI h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| rietis | E. | 53 7 20 | 2438 | 51 24 40 | 2422 | 49 41 37 | 2407 | 47 58 12 | 2390 |
| ebaran | E. | 84 36 30 | 2475 | 82 54 42 | 2458 | 81 12 30 | 2441 | 79 29 53 | 2423 |
| | W. | 122 55 29 | 2600 | 124 34 24 | 2582 | 126 13 44 | 2566 | 127 53 26 | 2548 |
| ırn | W. | 106 15 36 | 2324 | 108 1 0 | 2307 | 109 46 49 | 2291 | 111 33 2 | 2275 |
| s | W. | 83 39 21 | 2504 | 85 20 28 | 2487 | 87 2 0 | 2469 | 88 43 57 | 2450 |
| quilæ | W. | 61 19 41 | 3278 | 62 44 18 | 3228 | 64 9 54 | 3181 | 65 36 26 | 3137 |
| rietis | E. | 39 15 37 | 2320 | 37 30 6 | 2307 | 35 44 17 | 2297 | 33 58 13 | 2287 |
| ebaran | E. | 70 50 46 | 2341 | 69 5 47 | 2326 | 67 20 25 | 2311 | 65 34 42 | 2298 |
| | W. | 136 17 38 | 2472 | 137 59 31 | 2459 | 139 41 42 | 2446 | 141 24 11 | 2434 |
| s | W. | 97 19 54 | 2367 | 99 4 16 | 2353 | 100 48 59 | 2337 | 102 34 4 | 2323 |
| quilæ | W. | 73 1 23 | 2955 | 74 32 32 | 2927 | 76 4 17 | 2899 | 77 36 37 | 2874 |
| ıalhaut | W. | 45 26 36 | 2681 | 47 3 41 | 2635 | 48 41 49 | 2592 | 50 20 55 | 2553 |
| rietis | E. | 25 5 14 | 2272 | 23 18 34 | 2281 | 21 32 7 | 2297 | 19 46 3 | 2322 |
| ebaran | E. | 56 41 13 | 2237 | 54 53 40 | 2227 | 53 5 52 | 2218 | 51 17 51 | 2211 |
| lux | E. | 99 18 8 | 2133 | 97 27 59 | 2118 | 95 37 28 | 2105 | 93 46 36 | 2090 |
| s | W. | 111 24 25 | 2261 | 113 11 22 | 2251 | 114 58 34 | 2241 | 116 46 1 | 2232 |
| quilæ | W. | 85 25 28 | 2779 | 87 0 23 | 2767 | 88 35 34 | 2756 | 90 11 0 | 2747 |
| ıalhaut | W. | 58 48 43 | 2398 | 60 32 20 | 2375 | 62 16 31 | 2353 | 64 1 13 | 2333 |
| egasi | W. | 37 39 6 | 2690 | 39 15 59 | 2629 | 40 54 15 | 2574 | 42 33 46 | 2525 |
| ebaran | E. | 42 15 47 | 2197 | 40 27 15 | 2201 | 38 38 49 | 2207 | 36 50 32 | 2217 |
| ux | E. | 84 27 14 | 2031 | 82 34 28 | 2021 | 80 41 27 | 2011 | 78 48 10 | 2003 |
| quilæ | W. | 98 10 5 | 2736 | 99 45 57 | 2741 | 101 21 43 | 2747 | 102 57 20 | 2757 |
| ıalhaut | W. | 72 51 2 | 2262 | 74 37 58 | 2252 | 76 25 9 | 2243 | 78 12 32 | 2237 |
| egasi | W. | 51 5 54 | 2354 | 52 50 35 | 2331 | 54 35 50 | 2309 | 56 21 36 | 2291 |
| ebaran | E. | 27 55 1 | 2344 | 26 10 5 | 2395 | 24 26 23 | 2460 | 22 44 13 | 2545 |
| ux | E. | 69 18 46 | 1970 | 67 24 25 | 1967 | 65 29 58 | 1963 | 63 35 25 | 1961 |
| ulus | E. | 106 9 9 | 1965 | 104 14 40 | 1961 | 102 20 4 | 1958 | 100 25 23 | 1955 |
| ıalhaut | W. | 87 11 9 | 2226 | 88 58 58 | 2227 | 90 46 45 | 2231 | 92 34 26 | 2237 |
| egasi | W. | 65 15 53 | 2235 | 67 3 29 | 2229 | 68 51 13 | 2225 | 70 39 3 | 2223 |
| rietis | W. | 21 42 34 | 2117 | 23 33 7 | 2097 | 25 24 11 | 2081 | 27 15 39 | 2070 |
| ux | E. | 54 2 11 | 1961 | 52 7 35 | 1964 | 50 13 4 | 1967 | 48 18 38 | 1972 |
| ulus | E. | 90 51 19 | 1953 | 88 56 31 | 1956 | 87 1 48 | 1960 | 85 7 10 | 1963 |
| ıalhaut | W. | 101 30 23 | 2281 | 103 16 50 | 2294 | 105 2 58 | 2309 | 106 48 45 | 2325 |
| egasi | W. | 79 38 20 | 2233 | 81 25 58 | 2239 | 83 13 27 | 2247 | 85 0 44 | 2256 |
| rietis | W. | 36 35 38 | 2058 | 38 27 41 | 2061 | 40 19 40 | 2067 | 42 11 30 | 2073 |
| ux | E. | 38 48 44 | 2007 | 36 55 21 | 2017 | 35 2 14 | 2028 | 33 9 24 | 2040 |
| ulus | E. | 75 35 55 | 1995 | 73 42 13 | 2003 | 71 48 44 | 2012 | 69 55 29 | 2023 |
| egasi | W. | 93 53 25 | 2316 | 95 39 1 | 2331 | 97 24 15 | 2348 | 99 9 5 | 2365 |
| rietis | W. | 51 27 46 | 2120 | 53 18 15 | 2132 | 55 8 25 | 2145 | 56 58 16 | 2158 |
| ebaran | W. | 22 5 45 | 2617 | 23 44 17 | 2558 | 25 24 10 | 2514 | 27 5 4 | 2481 |
| ux | E. | 23 50 18 | 2116 | 21 59 43 | 2136 | 20 9 38 | 2157 | 18 20 6 | 2182 |
| ulus | E. | 60 33 33 | 2083 | 58 42 8 | 2098 | 56 51 5 | 2111 | 55 0 23 | 2126 |
| us | E. | 108 30 6 | 2317 | 106 44 31 | 2333 | 104 59 19 | 2348 | 103 14 30 | 2364 |
| rietis | W. | 66 2 8 | 2234 | 67 49 45 | 2251 | 69 36 56 | 2268 | 71 23 42 | 2285 |
| ebaran | W. | 35 37 31 | 2420 | 37 20 37 | 2421 | 39 3 41 | 2424 | 40 46 42 | 2429 |
| ulus | E. | 45 52 48 | 2208 | 44 4 32 | 2225 | 42 16 42 | 2243 | 40 29 19 | 2261 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P. L. of diff. | III$^h$. | P. L. of diff. | VI$^h$. | P. L. of diff. | IX$^h$ |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ |
| 23 | Venus | E. | 101 30 4 | 2382 | 99 46 3 | 2399 | 98 2 27 | 2417 | 96 19 |
| | Spica ♍ | E. | 107 10 26 | 2142 | 105 20 31 | 2158 | 103 31 0 | 2174 | 101 41 |
| | Jupiter | E. | 121 4 38 | 2226 | 119 16 49 | 2241 | 117 29 23 | 2257 | 115 42 |
| 24 | α Arietis | W. | 73 10 3 | 2303 | 74 55 58 | 2322 | 76 41 26 | 2340 | 78 26 |
| | Aldebaran | W. | 42 29 35 | 2437 | 44 12 17 | 2445 | 45 54 48 | 2455 | 47 37 |
| | Regulus | E. | 38 42 22 | 2279 | 36 55 52 | 2298 | 35 9 49 | 2317 | 33 24 |
| | Venus | E. | 87 50 8 | 2533 | 86 9 41 | 2554 | 84 29 43 | 2574 | 82 50 |
| | Spica ♍ | E. | 92 42 44 | 2279 | 90 56 14 | 2298 | 89 10 11 | 2316 | 87 24 |
| | Jupiter | E. | 106 53 17 | 2361 | 105 8 46 | 2380 | 103 24 42 | 2398 | 101 41 |
| | Sun | E. | 132 25 4 | 2629 | 130 46 49 | 2647 | 129 8 58 | 2666 | 127 31 |
| 25 | α Arietis | W. | 87 4 52 | 2453 | 88 47 12 | 2472 | 90 29 4 | 2491 | 92 10 |
| | Aldebaran | W. | 56 4 3 | 2535 | 57 44 27 | 2550 | 59 24 31 | 2566 | 61 4 |
| | Pollux | W. | 12 27 50 | 2527 | 14 8 26 | 2525 | 15 49 4 | 2530 | 17 29 |
| | Regulus | E. | 24 43 14 | 2432 | 23 0 25 | 2452 | 21 18 4 | 2471 | 19 36 |
| | Venus | E. | 74 39 57 | 2702 | 73 3 20 | 2724 | 71 27 12 | 2745 | 69 51 |
| | Spica ♍ | E. | 78 43 28 | 2431 | 77 0 37 | 2450 | 75 18 13 | 2469 | 73 36 |
| | Jupiter | E. | 93 9 42 | 2513 | 91 28 47 | 2533 | 89 48 19 | 2552 | 88 8 |
| | Sun | E. | 119 31 0 | 2785 | 117 56 12 | 2805 | 116 21 51 | 2825 | 114 47 |
| 26 | Aldebaran | W. | 69 17 9 | 2665 | 70 54 36 | 2681 | 72 31 42 | 2698 | 74 8 |
| | Pollux | W. | 25 48 21 | 2606 | 27 27 8 | 2622 | 29 5 33 | 2638 | 30 43 |
| | Venus | E. | 62 0 17 | 2874 | 60 27 25 | 2895 | 58 55 0 | 2916 | 57 23 |
| | Spica ♍ | E. | 65 13 11 | 2583 | 63 33 52 | 2601 | 61 54 58 | 2619 | 60 16 |
| | Jupiter | E. | 79 54 52 | 2668 | 78 17 29 | 2687 | 76 40 31 | 2705 | 75 3 |
| | Sun | E. | 107 4 50 | 2946 | 105 33 29 | 2965 | 104 2 32 | 2985 | 102 32 |
| 27 | Aldebaran | W. | 82 6 30 | 2796 | 83 41 3 | 2811 | 85 15 16 | 2828 | 86 49 |
| | Pollux | W. | 38 48 29 | 2734 | 40 24 24 | 2749 | 41 59 59 | 2765 | 43 35 |
| | Venus | E. | 49 49 39 | 3039 | 48 20 14 | 3058 | 46 51 13 | 3078 | 45 22 |
| | Spica ♍ | E. | 52 10 1 | 2723 | 50 33 52 | 2739 | 48 58 4 | 2755 | 47 22 |
| | Jupiter | E. | 67 7 15 | 2812 | 65 33 3 | 2830 | 63 59 14 | 2847 | 62 25 |
| | Sun | E. | 95 5 16 | 3097 | 93 37 3 | 3115 | 92 9 11 | 3132 | 90 41 |
| 28 | Pollux | W. | 51 26 39 | 2850 | 53 0 2 | 2863 | 54 33 9 | 2876 | 56 5 |
| | Regulus | W. | 14 32 33 | 2848 | 16 5 59 | 2860 | 17 39 9 | 2873 | 19 12 |
| | Venus | E. | 38 5 22 | 3192 | 36 39 3 | 3210 | 35 13 6 | 3230 | 33 47 |
| | Spica ♍ | E. | 39 30 24 | 2844 | 37 56 53 | 2858 | 36 23 40 | 2871 | 34 50 |
| | Jupiter | E. | 54 43 40 | 2941 | 53 12 13 | 2956 | 51 41 5 | 2970 | 50 10 |
| | Sun | E. | 83 29 1 | 3228 | 82 3 25 | 3243 | 80 38 7 | 3258 | 79 13 |
| 29 | Pollux | W. | 63 46 22 | 2944 | 65 17 45 | 2954 | 66 48 55 | 2964 | 68 19 |
| | Regulus | W. | 26 52 51 | 2940 | 28 24 19 | 2950 | 29 55 35 | 2960 | 31 26 |
| | Venus | E. | 26 45 23 | 3350 | 25 22 9 | 3372 | 23 59 20 | 3396 | 22 36 |
| | Spica ♍ | E. | 27 10 0 | 2943 | 25 38 35 | 2954 | 24 7 24 | 2964 | 22 36 |
| | Jupiter | E. | 42 40 23 | 3052 | 41 11 14 | 3065 | 39 42 21 | 3077 | 38 13 |
| | Sun | E. | 72 11 53 | 3335 | 70 48 22 | 3346 | 69 25 4 | 3358 | 68 1 |
| 30 | Pollux | W. | 75 52 0 | 3014 | 77 21 56 | 3020 | 78 51 44 | 3027 | 80 21 |
| | Regulus | W. | 38 59 12 | 3009 | 40 29 14 | 3016 | 41 59 7 | 3022 | 43 28 |
| | Jupiter | E. | 30 54 26 | 3154 | 29 27 22 | 3168 | 28 0 35 | 3183 | 26 34 |
| | Sun | E. | 61 9 25 | 3416 | 59 47 26 | 3423 | 58 25 36 | 3431 | 57 3 |

## MEAN TIME.

### LUNAR DISTANCES.

| tar's Name and Position. | | Midnight. | P. L. of diff. | XV h. | P. L. of diff. | XVIII h. | P. L. of diff. | XXI h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| nus | E. | 94 36 33 | 2455 | 92 54 16 | 2474 | 91 12 26 | 2493 | 89 31 3 | 2513 |
| ca ♍ | E.. | 99 53 11 | 2208 | 98 4 55 | 2225 | 96 17 5 | 2243 | 94 29 41 | 2261 |
| piter | E. | 113 55 41 | 2290 | 112 9 27 | 2307 | 110 23 38 | 2325 | 108 38 15 | 2342 |
| rietis | W. | 80 11 3 | 2377 | 81 55 11 | 2396 | 83 38 52 | 2415 | 85 22 5 | 2434 |
| lebaran | W. | 49 19 4 | 2479 | 51 0 47 | 2492 | 52 42 12 | 2506 | 54 23 17 | 2520 |
| gulus | E. | 31 39 6 | 2355 | 29 54 26 | 2374 | 28 10 14 | 2394 | 26 26 30 | 2413 |
| nus | E. | 81 11 12 | 2617 | 79 32 40 | 2638 | 77 54 37 | 2660 | 76 17 3 | 2681 |
| ca ♍ | E. | 85 39 27 | 2354 | 83 54 46 | 2373 | 82 10 32 | 2392 | 80 26 46 | 2412 |
| piter | E. | 99 57 53 | 2436 | 98 15 10 | 2455 | 96 32 53 | 2474 | 94 51 4 | 2494 |
| N | E. | 125 54 34 | 2705 | 124 18 1 | 2725 | 122 41 54 | 2745 | 121 6 14 | 2765 |
| rietis | W. | 93 51 29 | 2530 | 95 32 1 | 2548 | 97 12 7 | 2568 | 98 51 46 | 2587 |
| lebaran | W. | 62 43 33 | 2598 | 64 22 31 | 2615 | 66 1 6 | 2632 | 67 39 18 | 2647 |
| llux | W. | 19 9 55 | 2549 | 20 50 0 | 2562 | 22 29 47 | 2577 | 24 9 14 | 2591 |
| gulus | E. | 17 54 45 | 2511 | 16 13 47 | 2531 | 14 33 17 | 2551 | 12 53 15 | 2572 |
| nus | E. | 68 16 21 | 2789 | 66 41 38 | 2810 | 65 7 23 | 2832 | 63 33 36 | 2853 |
| ica ♍ | E. | 71 54 47 | 2507 | 70 13 44 | 2526 | 68 33 7 | 2545 | 66 52 56 | 2564 |
| piter | E. | 86 28 44 | 2591 | 84 49 37 | 2610 | 83 10 56 | 2629 | 81 32 41 | 2649 |
| N | E. | 113 14 27 | 2866 | 111 41 24 | 2886 | 110 8 47 | 2906 | 108 36 36 | 2926 |
| lebaran | W. | 75 44 45 | 2731 | 77 20 44 | 2747 | 78 56 21 | 2764 | 80 31 36 | 2780 |
| llux | W. | 32 21 18 | 2670 | 33 58 38 | 2687 | 35 35 36 | 2702 | 37 12 13 | 2718 |
| nus | E. | 55 51 29 | 2958 | 54 20 23 | 2978 | 52 49 43 | 2999 | 51 19 29 | 3018 |
| ica ♍ | E. | 58 38 24 | 2655 | 57 0 43 | 2672 | 55 23 26 | 2689 | 53 46 32 | 2707 |
| piter | E. | 73 27 50 | 2741 | 71 52 5 | 2760 | 70 16 45 | 2778 | 68 41 48 | 2796 |
| N | E. | 101 1 53 | 3023 | 99 32 9 | 3042 | 98 2 48 | 3061 | 96 33 51 | 3080 |
| lebaran | W. | 88 22 40 | 2858 | 89 55 53 | 2873 | 91 28 47 | 2887 | 93 1 22 | 2902 |
| llux | W. | 45 10 8 | 2794 | 46 44 44 | 2809 | 48 19 0 | 2822 | 49 52 59 | 2837 |
| nus | E. | 43 54 23 | 3116 | 42 26 33 | 3136 | 40 59 7 | 3154 | 39 32 3 | 3173 |
| ica ♍ | E. | 45 47 31 | 2786 | 44 12 45 | 2802 | 42 38 19 | 2816 | 41 4 12 | 2831 |
| piter | E. | 60 52 41 | 2879 | 59 19 55 | 2895 | 57 47 30 | 2911 | 56 15 25 | 2927 |
| N | E. | 89 14 30 | 3165 | 87 47 39 | 3182 | 86 21 8 | 3197 | 84 54 55 | 3213 |
| llux | W. | 57 38 33 | 2900 | 59 10 52 | 2912 | 60 42 56 | 2923 | 62 14 46 | 2934 |
| gulus | W. | 20 44 42 | 2896 | 22 17 6 | 2908 | 23 49 15 | 2919 | 25 21 10 | 2930 |
| nus | E. | 32 22 20 | 3268 | 30 57 31 | 3288 | 29 33 5 | 3307 | 28 9 2 | 3328 |
| ica ♍ | E. | 33 18 4 | 2897 | 31 45 41 | 2909 | 30 13 33 | 2920 | 28 41 39 | 2931 |
| piter | E. | 48 39 42 | 2998 | 47 9 27 | 3012 | 45 39 29 | 3026 | 44 9 48 | 3039 |
| N | E. | 77 48 21 | 3285 | 76 23 52 | 3298 | 74 59 38 | 3310 | 73 35 38 | 3323 |
| llux | W. | 69 50 40 | 2982 | 71 21 15 | 2990 | 72 51 40 | 2998 | 74 21 55 | 3006 |
| gulus | W. | 32 57 30 | 2977 | 34 28 11 | 2985 | 35 58 42 | 2994 | 37 29 2 | 3002 |
| nus | E. | 21 15 8 | 3452 | 19 53 50 | 3485 | 18 33 9 | 3523 | 17 13 10 | 3567 |
| ica ♍ | E. | 21 5 40 | 2984 | 19 35 7 | 2993 | 18 4 46 | 3003 | 16 34 37 | 3013 |
| piter | E. | 36 45 21 | 3102 | 35 17 14 | 3115 | 33 49 23 | 3128 | 32 21 47 | 3140 |
| N | E. | 66 39 6 | 3378 | 65 16 24 | 3388 | 63 53 54 | 3398 | 62 31 35 | 3406 |
| llux | W. | 81 50 55 | 3039 | 83 20 20 | 3044 | 84 49 38 | 3050 | 86 18 49 | 3054 |
| gulus | W. | 44 58 29 | 3035 | 46 27 59 | 3040 | 47 57 22 | 3045 | 49 26 39 | 3049 |
| piter | E. | 25 7 54 | 3215 | 23 42 3 | 3234 | 22 16 34 | 3255 | 20 51 30 | 3279 |
| N | E. | 55 42 22 | 3446 | 54 20 57 | 3453 | 52 59 40 | 3460 | 51 38 31 | 3465 |

## CONFIGURATIONS OF THE SATELLITES OF JUPITE

At $18^h\ 25^m$, Mean Time.

| Day of the Month. | *West.* | *East.* |
|---|---|---|
| 17 | .3 ·1○ 2· 4· | |
| 18 | 1·○ ·3 2· ○ 4· | |
| 19 | ·2 ○·3 ·1 4· | |
| 20 | 1· 4○· ·2 ·3 | |
| 21 | 4· ○ 2· ·1 3· | |
| 22 | 4· 2· ·1 ○ 3· | |
| 23 | 4· 3· ○ 1· | |
| 24 | .4 3· ·1 ○ 2· | |
| 25 | ·4 ·3 2· 1○· | |
| 26 | ·4 ·2 ○·1 | |
| 27 | ·4 1· ○ ·2 ·3 | |
| 28 | ·4 ○ 2·1 ·3 | |
| 29 | 2· 1· ○ ·4 3· | |
| 30 | 3· ·2 ○ 1· ·4 | |

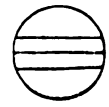
The SATELLITES are not visible until the 17th day of this Month,

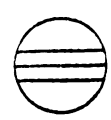
JUPITER being too near to the SUN.

This Table represents, at $18^h\ 25^m$ after *Mean Noon* of each day, the relative posi the images of Jupiter and his Satellites, as they would appear (disregarding their latit an inverting telescope. Jupiter is indicated by the white circles (○) in the centre of th the Satellites by points. The numerals 1, 2, 3, and 4, annexed to the points, serve to dis the Satellites from each other; and their positions are such as to indicate the directions of t lites' motions, which are in all cases to be considered as *towards the numerals*. When a Sat at its greatest elongation, the point is placed above or below the centre of the numeral. circle (○) at the left or right hand of the page, denotes that the *on* the disc of Jupiter, and a black circle (●) that it is either Jupiter.

## ECLIPSES OF THE SATELLITES OF JUPITER.*

| SATELLITE. | Day of the Month. | Mean Time. | Sidereal Time. | PHASE as seen in an inverting Telescope. |
|---|---|---|---|---|
| | | h m s | h m s | |
| I. | 17 | 19 0 59·0 | 10 47 33·0 | Im. |
| | 19 | 13 29 28·3 | 5 23 0·9 | Im. |
| | 21 | 7 57 53·5 | 23 58 24·8 | Im. |
| | 23 | 2 26 23·0 | 18 33 52·9 | Im. |
| | 24 | 20 54 47·4 | 13 9 16·0 | Im. |
| | 26 | 15 23 16·6 | 7 44 43·8 | Im. |
| | 28 | 9 51 40·7 | 2 20 6·6 | Im. |
| | 30 | 4 20 8·9 | 20 55 33·4 | Im. |
| II. | 20 | 3 42 5·3 | 19 37 57·9 | Im. |
| | 23 | 16 59 8·0 | 9 9 1·3 | Im. |
| | 27 | 6 16 3·7 | 22 39 57·5 | Im. |
| | 30 | 19 32 59·0 | 12 10 53·5 | Im. |
| III. | 19 | 12 54 1·7 | 4 47 28·5 | Im. |
| | 26 | 16 52 2·7 | 9 13 44·5 | Im. |





* The Satellites are not visible until the 17th day of this Month, Jupiter being too near to the Sun.

## APPROXIMATE SIDEREAL TIMES

OF THE

## OCCULTATIONS OF JUPITER'S SATELLITES BY JUPITER,

AND OF THE

## TRANSITS OF THE SATELLITES AND THEIR SHADOWS OVER THE DISC OF THE PLANET.

| Satellite. | Occultations. | | Transits of Satellites. | | Transits of Shado | |
|---|---|---|---|---|---|---|
| | Immersion. | Emersion. | Ingress. | Egress. | Ingress. | Egr |
| | d h m | d h m | d h m | d h m | d h m | d |
| I. | | 17 13 24 | 18 8 35 | 18 10 49 | 18 8 9 | 18* 10 |
| | In | 19 8 2 | 20 3 12 | 20 5 26 | 20 2 44 | 20 4 |
| | | 21 2 39 | 22 21 50 | 22 0 3 | 22 21 20 | 22 23 |
| | | 23 21 16 | 24 16 26 | 24 18 40 | 23 15 55 | 24 18 |
| | the | 24 15 53 | 25 11 4 | 25 13 17 | 25* 10 30 | 25 19 |
| | | 26* 10 30 | 27 5 41 | 27 7 54 | 27 5 6 | 27 |
| | Shadow. | 28 5 7 | 29 0 18 | 29 2 31 | 29 23 41 | 29 |
| | | 30 23 44 | | | | |
| II. | In | 20 22 56 | 18 1 15 | 18 3 40 | 18 0 23 | 18 |
| | | 23 12 33 | 21 14 54 | 22 17 19 | 21 13 55 | 22 1 |
| | the | 27 2 11 | 25 4 32 | 25 6 57 | 25 3 27 | 25 |
| | Shadow. | 30 15 48 | 29 18 11 | 29 20 35 | 29 16 59 | 29 1 |
| III. | In the | 19 9 5 | 23 21 3 | 23 23 37 | 23 19 0 | 23 2 |
| | Shadow. | 26 13 58 | 30 1 57 | 30 4 29 | 30 23 26 | 30 |

* The Satellites are not visible until the 17th day of this Month, Jupiter being too near to the Sun.

| Day of the Month. | For correcting the Places of the Fixed Stars. At Mean Midnight, Logarithm of A | B | C | D | Mean Time of Transit of the First Point of Aries. | Mean Equinoctial Time, adding 0d·293960. Days. | From Mean Noon of January 1. Day of the Year. | Fraction of the Year. |
|---|---|---|---|---|---|---|---|---|
| | | | | | h m s | | | |
| 1 | +1 ·1624 | +1 ·1068 | +9 ·9583 | −0 ·9483 | 9 18 6 ·70 | 223 | 304 | ·832 |
| 2 | 1 ·1561 | 1 ·1160 | 9 ·9597 | 0 ·9472 | 9 14 10 ·80 | 224 | 305 | ·835 |
| 3 | 1 ·1497 | 1 ·1250 | 9 ·9611 | 0 ·9462 | 9 10 14 ·89 | 225 | 306 | ·838 |
| 4 | +1 ·1429 | +1 ·1336 | +9 ·9625 | −0 ·9452 | 9 6 18 ·98 | 226 | 307 | ·841 |
| 5 | 1 ·1360 | 1 ·1419 | 9 ·9639 | 0 ·9441 | 9 2 23 ·08 | 227 | 308 | ·843 |
| 6 | 1 ·1288 | 1 ·1499 | 9 ·9653 | 0 ·9430 | 8 58 27 ·17 | 228 | 309 | ·846 |
| 7 | +1 ·1213 | +1 ·1577 | +9 ·9667 | −0 ·9420 | 8 54 31 ·26 | 229 | 310 | ·849 |
| 8 | 1 ·1136 | 1 ·1653 | 9 ·9681 | 0 ·9409 | 8 50 35 ·34 | 230 | 311 | ·851 |
| 9 | 1 ·1056 | 1 ·1725 | 9 ·9696 | 0 ·9398 | 8 46 39 ·43 | 231 | 312 | ·854 |
| 10 | +1 ·0972 | +1 ·1795 | +9 ·9710 | −0 ·9387 | 8 42 43 ·51 | 232 | 313 | ·857 |
| 11 | 1 ·0886 | 1 ·1863 | 9 ·9724 | 0 ·9376 | 8 38 47 ·60 | 233 | 314 | ·860 |
| 12 | 1 ·0797 | 1 ·1928 | 9 ·9739 | 0 ·9366 | 8 34 51 ·68 | 234 | 315 | ·862 |
| 13 | +1 ·0704 | +1 ·1991 | +9 ·9754 | −0 ·9355 | 8 30 55 ·77 | 235 | 316 | ·865 |
| 14 | 1 ·0608 | 1 ·2052 | 9 ·9769 | 0 ·9344 | 8 26 59 ·86 | 236 | 317 | ·868 |
| 15 | 1 ·0509 | 1 ·2111 | 9 ·9784 | 0 ·9334 | 8 23 3 ·95 | 237 | 318 | ·871 |
| 16 | +1 ·0406 | +1 ·2167 | +9 ·9799 | −0 ·9323 | 8 19 8 ·04 | 238 | 319 | ·873 |
| 17 | 1 ·0298 | 1 ·2222 | 9 ·9814 | 0 ·9313 | 8 15 12 ·14 | 239 | 320 | ·876 |
| 18 | 1 ·0187 | 1 ·2274 | 9 ·9829 | 0 ·9302 | 8 11 16 ·23 | 240 | 321 | ·879 |
| 19 | +1 ·0071 | +1 ·2325 | +9 ·9844 | −0 ·9292 | 8 7 20 ·33 | 241 | 322 | ·882 |
| 20 | 0 ·9951 | 1 ·2374 | 9 ·9859 | 0 ·9282 | 8 3 24 ·42 | 242 | 323 | ·884 |
| 21 | 0 ·9826 | 1 ·2421 | 9 ·9875 | 0 ·9272 | 7 59 28 ·50 | 243 | 324 | ·887 |
| 22 | +0 ·9695 | +1 ·2466 | +9 ·9890 | −0 ·9262 | 7 55 32 ·59 | 244 | 325 | ·890 |
| 23 | 0 ·9559 | 1 ·2509 | 9 ·9906 | 0 ·9252 | 7 51 36 ·67 | 245 | 326 | ·893 |
| 24 | 0 ·9418 | 1 ·2550 | 9 ·9921 | 0 ·9242 | 7 47 40 ·75 | 246 | 327 | ·895 |
| 25 | +0 ·9270 | +1 ·2590 | +9 ·9937 | −0 ·9233 | 7 43 44 ·83 | 247 | 328 | ·898 |
| 26 | 0 ·9115 | 1 ·2628 | 9 ·9953 | 0 ·9223 | 7 39 48 ·92 | 248 | 329 | ·901 |
| 27 | 0 ·8953 | 1 ·2665 | 9 ·9968 | 0 ·9214 | 7 35 53 ·01 | 249 | 330 | ·903 |
| 28 | +0 ·8784 | +1 ·2700 | +9 ·9984 | −0 ·9205 | 7 31 57 ·10 | 250 | 331 | ·906 |
| 29 | 0 ·8606 | 1 ·2733 | 0 ·0000 | 0 ·9197 | 7 28 1 ·20 | 251 | 332 | ·909 |
| 30 | 0 ·8419 | 1 ·2764 | 0 ·0016 | 0 ·9188 | 7 24 5 ·29 | 252 | 333 | ·912 |
| | | [illegible]4 | +0 ·0032 | −0 ·9180 | 7 20 9 ·38 | 253 | 334 | ·914 |

## AT APPARENT NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | Diff. for 1 hour. | Apparent Declination. | Diff. for 1 hour. | Sidereal Time of the Semidiam. passing the Meridian.* | Equation of Time, *to be subt. from* / *added to Apparent Time.* | Diff. for 1 hour. |
|---|---|---|---|---|---|---|---|---|
| | | h m s | s | ° ′ ″ | ″ | m s | m s | s |
| *Sun.* | 1 | 16 27 43 ·25 | 10 ·809 | S. 21 46 4 ·6 | 23 ·23 | 1 10 ·18 | 10 53 ·28 | 0 ·950 |
| Mon. | 2 | 16 32 2 ·66 | 10 ·836 | 21 55 22 ·2 | 22 ·18 | 1 10 ·27 | 10 30 ·48 | 0 ·977 |
| Tues. | 3 | 16 36 22 ·73 | 10 ·862 | 22 4 14 ·5 | 21 ·11 | 1 10 ·35 | 10 7 ·04 | 1 ·003 |
| Wed. | 4 | 16 40 43 ·41 | 10 ·887 | 22 12 41 ·1 | 20 ·03 | 1 10 ·43 | 9 42 ·98 | 1 ·027 |
| Thur. | 5 | 16 45 4 ·69 | 10 ·910 | 22 20 41 ·9 | 18 ·95 | 1 10 ·51 | 9 18 ·33 | 1 ·051 |
| Frid. | 6 | 16 49 26 ·54 | 10 ·932 | 22 28 16 ·6 | 17 ·85 | 1 10 ·58 | 8 53 ·11 | 1 ·073 |
| Sat. | 7 | 16 53 48 ·91 | 10 ·953 | 22 35 24 ·9 | 16 ·74 | 1 10 ·65 | 8 27 ·37 | 1 ·094 |
| *Sun.* | 8 | 16 58 11 ·79 | 10 ·973 | 22 42 6 ·6 | 15 ·62 | 1 10 ·72 | 8 1 ·12 | 1 ·113 |
| Mon. | 9 | 17 2 35 ·15 | 10 ·991 | 22 48 21 ·5 | 14 ·49 | 1 10 ·78 | 7 34 ·41 | 1 ·131 |
| Tues. | 10 | 17 6 58 ·93 | 11 ·008 | 22 54 9 ·3 | 13 ·36 | 1 10 ·84 | 7 7 ·27 | 1 ·148 |
| Wed. | 11 | 17 11 23 ·11 | 11 ·023 | 22 59 30 ·0 | 12 ·22 | 1 10 ·89 | 6 39 ·72 | 1 ·164 |
| Thur. | 12 | 17 15 47 ·66 | 11 ·037 | 23 4 23 ·3 | 11 ·07 | 1 10 ·94 | 6 11 ·79 | 1 ·177 |
| Frid. | 13 | 17 20 12 ·55 | 11 ·050 | 23 8 49 ·0 | 9 ·92 | 1 10 ·98 | 5 43 ·54 | 1 ·190 |
| Sat. | 14 | 17 24 37 ·74 | 11 ·061 | 23 12 47 ·0 | 8 ·76 | 1 11 ·02 | 5 14 ·98 | 1 ·202 |
| *Sun.* | 15 | 17 29 3 ·21 | 11 ·072 | 23 16 17 ·3 | 7 ·60 | 1 11 ·06 | 4 46 ·14 | 1 ·212 |
| Mon. | 16 | 17 33 28 ·94 | 11 ·080 | 23 19 19 ·6 | 6 ·43 | 1 11 ·09 | 4 17 ·05 | 1 ·220 |
| Tues. | 17 | 17 37 54 ·87 | 11 ·088 | 23 21 54 ·0 | 5 ·26 | 1 11 ·12 | 3 47 ·76 | 1 ·228 |
| Wed. | 18 | 17 42 20 ·99 | 11 ·095 | 23 24 0 ·3 | 4 ·09 | 1 11 ·15 | 3 18 ·28 | 1 ·235 |
| Thur. | 19 | 17 46 47 ·27 | 11 ·100 | 23 25 38 ·4 | 2 ·92 | 1 11 ·17 | 2 48 ·64 | 1 ·240 |
| Frid. | 20 | 17 51 13 ·68 | 11 ·104 | 23 26 48 ·4 | 1 ·74 | 1 11 ·19 | 2 18 ·88 | 1 ·244 |
| Sat. | 21 | 17 55 40 ·18 | 11 ·107 | 23 27 30 ·2 | 0 ·57 | 1 11 ·20 | 1 49 ·02 | 1 ·247 |
| *Sun.* | 22 | 18 0 6 ·75 | 11 ·108 | 23 27 43 ·8 | 0 ·62 | 1 11 ·21 | 1 19 ·10 | 1 ·248 |
| Mon. | 23 | 18 4 33 ·34 | 11 ·108 | 23 27 29 ·0 | 1 ·79 | 1 11 ·21 | 0 49 ·15 | 1 ·248 |
| Tues. | 24 | 18 8 59 ·94 | 11 ·107 | 23 26 46 ·0 | 2 ·97 | 1 11 ·20 | 0 19 ·19 | 1 ·247 |
| Wed. | 25 | 18 13 26 ·50 | 11 ·105 | 23 25 34 ·7 | 4 ·15 | 1 11 ·19 | 0 10 ·73 | 1 ·244 |
| Thur. | 26 | 18 17 53 ·01 | 11 ·101 | 23 23 55 ·0 | 5 ·33 | 1 11 ·18 | 0 40 ·59 | 1 ·241 |
| Frid. | 27 | 18 22 19 ·43 | 11 ·095 | 23 21 47 ·2 | 6 ·50 | 1 11 ·16 | 1 10 ·38 | 1 ·236 |
| Sat. | 28 | 18 26 45 ·72 | 11 ·089 | 23 19 11 ·1 | 7 ·68 | 1 11 ·14 | 1 40 ·04 | 1 ·229 |
| *Sun.* | 29 | 18 31 11 ·85 | 11 ·081 | 23 16 6 ·8 | 8 ·85 | 1 11 ·11 | 2 9 ·54 | 1 ·221 |
| Mon. | 30 | 18 35 37 ·80 | 11 ·072 | 23 12 34 ·5 | 10 ·01 | 1 11 ·08 | 2 38 ·85 | 1 ·212 |
| Tues. | 31 | 18 40 3 ·52 | 11 ·062 | 23 8 34 ·2 | 11 ·18 | 1 11 ·05 | 3 7 ·93 | 1 ·202 |
| Wed. | 32 | 18 44 29 ·00 | | S. 23 4 6 ·0 | | 1 11 ·01 | 3 36 ·77 | |

* *Mean* Time of the Semidiameter passing may be found by subtracting 0s·19 from the *Sidereal* Time.

## AT MEAN NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | THE SUN'S Apparent Declination. | THE SUN'S Semidiam.* | Equation of Time, to be added to / subt. from Mean Time. | Sidereal Time. |
|---|---|---|---|---|---|---|
| | | h m s | ° ′ ″ | ′ ″ | m s | h m s |
| *Sun.* | 1 | 16 27 45 ·21 | S. 21 46 9 ·0 | 16 14 ·9 | 10 53 ·10 | 16 38 38 ·31 |
| Mon. | 2 | 16 32 4 ·55 | 21 55 26 ·2 | 16 15 ·1 | 10 30 ·32 | 16 42 34 ·87 |
| Tues. | 3 | 16 36 24 ·55 | 22 4 18 ·2 | 16 15 ·2 | 10 6 ·88 | 16 46 31 ·43 |
| Wed. | 4 | 16 40 45 ·17 | 22 12 44 ·5 | 16 15 ·3 | 9 42 ·81 | 16 50 27 ·98 |
| Thur. | 5 | 16 45 6 ·38 | 22 20 44 ·9 | 16 15 ·5 | 9 18 ·17 | 16 54 24 ·55 |
| Frid. | 6 | 16 49 28 ·16 | 22 28 19 ·3 | 16 15 ·6 | 8 52 ·95 | 16 58 21 ·11 |
| Sat. | 7 | 16 53 50 ·46 | 22 35 27 ·3 | 16 15 ·7 | 8 27 ·21 | 17 2 17 ·67 |
| *Sun.* | 8 | 16 58 13 ·26 | 22 42 8 ·7 | 16 15 ·8 | 8 0 ·98 | 17 6 14 ·24 |
| Mon. | 9 | 17 2 36 ·53 | 22 48 23 ·4 | 16 16 ·0 | 7 34 ·27 | 17 10 10 ·80 |
| Tues. | 10 | 17 7 0 ·23 | 22 54 11 ·0 | 16 16 ·1 | 7 7 ·13 | 17 14 7 ·36 |
| Wed. | 11 | 17 11 24 ·33 | 22 59 31 ·4 | 16 16 ·2 | 6 39 ·59 | 17 18 3 ·92 |
| Thur. | 12 | 17 15 48 ·80 | 23 4 24 ·5 | 16 16 ·3 | 6 11 ·68 | 17 22 0 ·48 |
| Frid. | 13 | 17 20 13 ·60 | 23 8 50 ·0 | 16 16 ·4 | 5 43 ·43 | 17 25 57 ·03 |
| Sat. | 14 | 17 24 38 ·71 | 23 12 47 ·9 | 16 16 ·5 | 5 14 ·87 | 17 29 53 ·58 |
| *Sun.* | 15 | 17 29 4 ·09 | 23 16 18 ·0 | 16 16 ·6 | 4 46 ·05 | 17 33 50 ·14 |
| Mon. | 16 | 17 33 29 ·73 | 23 19 20 ·1 | 16 16 ·7 | 4 16 ·96 | 17 37 46 ·69 |
| Tues. | 17 | 17 37 55 ·57 | 23 21 54 ·3 | 16 16 ·8 | 3 47 ·68 | 17 41 43 ·25 |
| Wed. | 18 | 17 42 21 ·60 | 23 24 0 ·5 | 16 16 ·8 | 3 18 ·21 | 17 45 39 ·81 |
| Thur. | 19 | 17 46 47 ·79 | 23 25 38 ·6 | 16 16 ·9 | 2 48 ·58 | 17 49 36 ·37 |
| Frid. | 20 | 17 51 14 ·11 | 23 26 48 ·5 | 16 17 ·0 | 2 18 ·83 | 17 53 32 ·94 |
| Sat. | 21 | 17 55 40 ·52 | 23 27 30 ·2 | 16 17 ·0 | 1 48 ·98 | 17 57 29 ·50 |
| *Sun.* | 22 | 18 0 6 ·99 | 23 27 43 ·8 | 16 17 ·1 | 1 19 ·08 | 18 1 26 ·07 |
| Mon. | 23 | 18 4 33 ·49 | 23 27 29 ·0 | 16 17 ·1 | 0 49 ·14 | 18 5 22 ·63 |
| Tues. | 24 | 18 9 0 ·00 | 23 26 46 ·0 | 16 17 ·2 | 0 19 ·18 | 18 9 19 ·18 |
| Wed. | 25 | 18 13 26 ·47 | 23 25 34 ·7 | 16 17 ·2 | 0 10 ·73 | 18 13 15 ·74 |
| Thur. | 26 | 18 17 52 ·88 | 23 23 55 ·1 | 16 17 ·2 | 0 40 ·58 | 18 17 12 ·30 |
| Frid. | 27 | 18 22 19 ·21 | 23 21 47 ·3 | 16 17 ·3 | 1 10 ·36 | 18 21 8 ·85 |
| Sat. | 28 | 18 26 45 ·41 | 23 19 11 ·3 | 16 17 ·3 | 1 40 ·01 | 18 25 5 ·40 |
| *Sun.* | 29 | 18 31 11 ·45 | 23 16 7 ·1 | 16 17 ·3 | 2 9 ·49 | 18 29 1 ·96 |
| Mon. | 30 | 18 35 37 ·31 | 23 12 34 ·9 | 16 17 ·3 | 2 38 ·80 | 18 32 58 ·51 |
| Tues. | 31 | 18 40 2 ·94 | 23 8 34 ·7 | 16 17 ·3 | 3 7 ·87 | 18 36 55 ·07 |
| Wed. | 32 | 18 44 2[illegible] | [illegible] | [illegible] | 3 36 ·70 | 18 40 51 ·63 |

* The Semidia[illegible] [illegible]hat for *Mean* Noon.

## MEAN TIME.

| Day of the Month. | THE SUN'S Apparent Longitude. Noon. | THE SUN'S Apparent Latitude. Noon. | Logarithm of the Radius Vector of the Earth. Noon. | THE MOON'S Semidiameter. Noon. | THE MOON'S Semidiameter. Midnight. | THE MOON'S Horizontal Parallax. Noon. | THE MOON'S Horizontal Parallax. Midnight. |
|---|---|---|---|---|---|---|---|
| | ° ′ ″ | ″ | | ′ ″ | ′ ″ | ′ ″ | ′ ″ |
| 1 | 248 40 1·6 | N.0·09 | 9·9937136 | 14 46·6 | 14 44·6 | 54 13·5 | 54 6·4 |
| 2 | 249 40 55·2 | S.0·02 | 9·9936503 | 14 43·2 | 14 42·3 | 54 1·2 | 53 57·9 |
| 3 | 250 41 50·2 | 0·10 | 9·9935886 | 14 41·9 | 14 41·9 | 53 56·4 | 53 56·4 |
| 4 | 251 42 46·3 | 0·15 | 9·9935282 | 14 42·4 | 14 43·2 | 53 58·0 | 54 0·9 |
| 5 | 252 43 43·7 | 0·18 | 9·9934692 | 14 44·3 | 14 45·7 | 54 5·0 | 54 10·4 |
| 6 | 253 44 42·1 | 0·17 | 9·9934115 | 14 47·6 | 14 49·6 | 54 17·1 | 54 24·6 |
| 7 | 254 45 41·4 | 0·13 | 9·9933552 | 14 52·0 | 14 54·6 | 54 33·3 | 54 43·0 |
| 8 | 255 46 41·6 | S.0·07 | 9·9933004 | 14 57·6 | 15 0·8 | 54 53·8 | 55 5·6 |
| 9 | 256 47 42·5 | N.0·01 | 9·9932472 | 15 4·3 | 15 8·2 | 55 18·7 | 55 32·7 |
| 10 | 257 48 44·0 | 0·12 | 9·9931955 | 15 12·3 | 15 16·8 | 55 47·9 | 56 4·5 |
| 11 | 258 49 46·0 | 0·24 | 9·9931457 | 15 21·6 | 15 26·8 | 56 22·0 | 56 41·1 |
| 12 | 259 50 48·6 | 0·37 | 9·9930978 | 15 32·2 | 15 38·0 | 57 1·0 | 57 22·1 |
| 13 | 260 51 51·5 | 0·50 | 9·9930519 | 15 44·0 | 15 50·2 | 57 44·1 | 58 6·8 |
| 14 | 261 52 54·8 | 0·62 | 9·9930082 | 15 56·4 | 16 2·6 | 58 29·6 | 58 52·5 |
| 15 | 262 53 58·5 | 0·73 | 9·9929666 | 16 8·8 | 16 14·7 | 59 15·3 | 59 36·8 |
| 16 | 263 55 2·7 | 0·83 | 9·9929274 | 16 20·1 | 16 25·0 | 59 56·8 | 60 14·5 |
| 17 | 264 56 7·1 | 0·90 | 9·9928907 | 16 29·1 | 16 32·3 | 60 29·7 | 60 41·6 |
| 18 | 265 57 12·1 | 0·94 | 9·9928567 | 16 34·6 | 16 35·7 | 60 49·8 | 60 53·9 |
| 19 | 266 58 17·4 | 0·95 | 9·9928254 | 16 35·6 | 16 34·4 | 60 53·7 | 60 49·2 |
| 20 | 267 59 23·2 | 0·93 | 9·9927969 | 16 32·0 | 16 28·3 | 60 40·2 | 60 26·9 |
| 21 | 269 0 29·5 | 0·87 | 9·9927713 | 16 23·7 | 16 18·1 | 60 9·9 | 59 49·4 |
| 22 | 270 1 36·2 | 0·79 | 9·9927486 | 16 11·8 | 16 4·8 | 59 26·1 | 59 0·6 |
| 23 | 271 2 43·3 | 0·69 | 9·9927286 | 15 57·5 | 15 49·9 | 58 33·7 | 58 6·0 |
| 24 | 272 3 50·9 | 0·57 | 9·9927114 | 15 42·2 | 15 34·6 | 57 37·5 | 57 9·8 |
| 25 | 273 4 58·9 | 0·44 | 9·9926969 | 15 27·2 | 15 20·3 | 56 42·7 | 56 17·2 |
| 26 | 274 6 7·4 | 0·31 | 9·9926849 | 15 13·7 | 15 7·7 | 55 53·0 | 55 30·9 |
| 27 | 275 7 16·5 | 0·17 | 9·9926753 | 15 2·3 | 14 57·6 | 55 11·1 | 54 53·8 |
| 28 | 276 8 26·0 | N.0·04 | 9·9926680 | 14 53·6 | 14 50·2 | 54 39·2 | 54 26·8 |
| 29 | 277 9 36·0 | S.0·07 | 9·9926630 | 14 47·5 | 14 45·7 | 54 17·0 | 54 10·1 |
| 30 | 278 10 46·5 | 0·15 | 9·9926602 | 14 44·4 | 14 43·8 | 54 5·5 | 54 3·2 |
| 31 | 279 11 57·2 | 0·21 | 9·9926594 | 14 43·7 | 14 44·2 | 54 2·8 | 54 4·7 |
| 32 | 280 13 8·3 | S.0·25 | 9·9926605 | 14 45·3 | 14 46·8 | 54 8·7 | 54 14·2 |

## MEAN TIME.

| Day of the Week. | Day of the Month. | THE MOON'S Longitude. Noon. | Longitude. Midnight. | Latitude. Noon. | Latitude. Midnight. | Age. Noon. | Meridian Passage. |
|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | ° ′ ″ | ° ′ ″ | ° ′ ″ | d | h m |
| *Sun.* | 1 | 198 26 28 ·1 | 204 22 13 ·5 | S.2 59 42 ·1 | S.3 23 40 ·3 | 25 ·2 | 20 59 ·6 |
| Mon. | 2 | 210 17 17 ·2 | 216 12 4 ·3 | 3 45 22 ·2 | 4 4 34 ·8 | 26 ·2 | 21 42 ·4 |
| Tues. | 3 | 222 6 55 ·9 | 228 2 10 ·6 | 4 21 7 ·7 | 4 34 51 ·3 | 27 ·2 | 22 27 ·8 |
| Wed. | 4 | 233 58 3 ·6 | 239 54 48 ·7 | 4 45 36 ·7 | 4 53 15 ·9 | 28 ·2 | 23 16 ·2 |
| Thur. | 5 | 245 52 35 ·7 | 251 51 34 ·1 | 4 57 43 ·2 | 4 58 54 ·3 | 29 ·2 | ♂ |
| Frid. | 6 | 257 51 51 ·4 | 263 53 34 ·8 | 4 56 45 ·9 | 4 51 17 ·3 | 0 ·4 | 0 7 ·1 |
| Sat. | 7 | 269 56 50 ·5 | 276 1 46 ·0 | 4 42 30 ·1 | 4 30 26 ·1 | 1 ·4 | 0 59 ·6 |
| *Sun.* | 8 | 282 8 28 ·8 | 288 17 9 ·2 | 4 15 11 ·2 | 3 56 52 ·1 | 2 ·4 | 1 52 ·2 |
| Mon. | 9 | 294 27 57 ·8 | 300 41 9 ·1 | 3 35 38 ·2 | 3 11 40 ·0 | 3 ·4 | 2 43 ·7 |
| Tues. | 10 | 306 56 58 ·9 | 313 15 45 ·2 | 2 45 10 ·9 | 2 16 25 ·7 | 4 ·4 | 3 33 ·2 |
| Wed. | 11 | 319 37 49 ·3 | 326 3 33 ·4 | 1 45 41 ·4 | 1 13 17 ·1 | 5 ·4 | 4 20 ·6 |
| Thur. | 12 | 332 33 20 ·8 | 339 7 36 ·9 | S.0 39 33 ·6 | S.0 4 54 ·1 | 6 ·4 | 5 6 ·4 |
| Frid. | 13 | 345 46 44 ·9 | 352 31 7 ·3 | N.0 30 15 ·8 | N.1 5 28 ·0 | 7 ·4 | 5 51 ·6 |
| Sat. | 14 | 359 21 2 ·9 | 6 16 46 ·8 | 1 40 13 ·3 | 2 13 58 ·8 | 8 ·4 | 6 37 ·5 |
| *Sun.* | 15 | 13 18 26 ·0 | 20 26 1 ·7 | 2 46 10 ·0 | 3 16 13 ·0 | 9 ·4 | 7 25 ·5 |
| Mon. | 16 | 27 39 24 ·3 | 34 58 13 ·3 | 3 43 31 ·6 | 4 7 30 ·2 | 10 ·4 | 8 17 ·1 |
| Tues. | 17 | 42 21 56 ·0 | 49 49 47 ·5 | 4 27 35 ·9 | 4 43 19 ·1 | 11 ·4 | 9 13 ·7 |
| Wed. | 18 | 57 20 51 ·4 | 64 54 1 ·4 | 4 54 15 ·6 | 5 0 7 ·1 | 12 ·4 | 10 15 ·7 |
| Thur. | 19 | 72 28 2 ·6 | 80 1 37 ·0 | 5 0 43 ·7 | 4 56 4 ·4 | 13 ·4 | 11 21 ·6 |
| Frid. | 20 | 87 33 23 ·8 | 95 2 5 ·9 | 4 46 16 ·3 | 4 31 36 ·4 | 14 ·4 | 12 28 ·4 |
| Sat. | 21 | 102 26 33 ·4 | 109 45 43 ·9 | 4 12 28 ·1 | 3 49 20 ·6 | 15 ·4 | 13 32 ·3 |
| *Sun.* | 22 | 116 58 48 ·2 | 124 5 9 ·3 | 3 22 48 ·2 | 2 53 27 ·4 | 16 ·4 | 14 30 ·8 |
| Mon. | 23 | 131 4 23 ·0 | 137 56 18 ·8 | 2 21 55 ·1 | 1 48 48 ·4 | 17 ·4 | 15 23 ·4 |
| Tues. | 24 | 144 40 56 ·8 | 151 18 28 ·4 | 1 14 41 ·1 | N.0 40 6 ·2 | 18 ·4 | 16 10 ·7 |
| Wed. | 25 | 157 49 12 ·5 | 164 13 36 ·2 | N.0 5 32 ·8 | S.0 28 33 ·1 | 19 ·4 | 16 54 ·4 |
| Thur. | 26 | 170 32 11 ·1 | 176 45 33 ·2 | S.1 1 48 ·4 | 1 33 52 ·3 | 20 ·4 | 17 35 ·7 |
| Frid. | 27 | 182 54 19 ·8 | 188 59 12 ·0 | 2 4 26 ·9 | 2 33 16 ·8 | 21 ·4 | 18 16 ·1 |
| Sat. | 28 | 195 0 49 ·1 | 200 59 51 ·3 | 3 0 7 ·9 | 3 24 47 ·6 | 22 ·4 | 18 56 ·9 |
| *Sun.* | 29 | 206 56 56 ·2 | 212 52 42 ·3 | 3 47 5 ·0 | 4 6 49 ·2 | 23 ·4 | 19 39 ·1 |
| Mon. | 30 | 218 47 43 ·4 | 224 42 32 ·8 | 4 23 51 ·4 | 4 38 2 ·3 | 24 ·4 | 20 23 ·6 |
| Tu | | 0 37 39 ·5 | 236 33 31 ·0 | 4 49 14 ·2 | 4 57 20 ·3 | 25 ·4 | 21 10 ·9 |
| | | | 248 28 58 ·6 | S.5 2 14 ·3 | S.5 3 51 ·1 | 26 ·4 | 22 1 ·1 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SUNDAY* 1. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 13 3 24 ·14 | S. 10 0 11 ·7 | 132 ·77 |
| 1 | 13 5 12 ·16 | 10 13 28 ·3 | 132 ·37 |
| 2 | 13 7 0 ·29 | 10 26 42 ·5 | 131 ·92 |
| 3 | 13 8 48 ·54 | 10 39 54 ·0 | 131 ·50 |
| 4 | 13 10 36 ·92 | 10 53 3 ·0 | 131 ·07 |
| 5 | 13 12 25 ·42 | 11 6 9 ·4 | 130 ·62 |
| 6 | 13 14 14 ·06 | 11 19 13 ·1 | 130 ·17 |
| 7 | 13 16 2 ·82 | 11 32 14 ·1 | 129 ·70 |
| 8 | 13 17 51 ·73 | 11 45 12 ·3 | 129 ·23 |
| 9 | 13 19 40 ·78 | 11 58 7 ·7 | 128 ·77 |
| 10 | 13 21 29 ·98 | 12 11 0 ·3 | 128 ·28 |
| 11 | 13 23 19 ·33 | 12 23 50 ·0 | 127 ·78 |
| 12 | 13 25 8 ·83 | 12 36 36 ·7 | 127 ·30 |
| 13 | 13 26 58 ·49 | 12 49 20 ·5 | 126 ·80 |
| 14 | 13 28 48 ·31 | 13 2 1 ·3 | 126 ·27 |
| 15 | 13 30 38 ·29 | 13 14 38 ·9 | 125 ·77 |
| 16 | 13 32 28 ·44 | 13 27 13 ·5 | 125 ·23 |
| 17 | 13 34 18 ·76 | 13 39 44 ·9 | 124 ·70 |
| 18 | 13 36 9 ·26 | 13 52 13 ·1 | 124 ·17 |
| 19 | 13 37 59 ·94 | 14 4 38 ·1 | 123 ·60 |
| 20 | 13 39 50 ·80 | 14 16 59 ·7 | 123 ·05 |
| 21 | 13 41 41 ·84 | 14 29 18 ·0 | 122 ·48 |
| 22 | 13 43 33 ·08 | 14 41 32 ·9 | 121 ·92 |
| 23 | 13 45 24 ·50 | S. 14 53 44 ·4 | 121 ·32 |
| | *MONDAY* 2. | | |
| 0 | 13 47 16 ·12 | S. 15 5 52 ·3 | 120 ·73 |
| 1 | 13 49 7 ·94 | 15 17 56 ·7 | 120 ·13 |
| 2 | 13 50 59 ·96 | 15 29 57 ·5 | 119 ·52 |
| 3 | 13 52 52 ·19 | 15 41 54 ·6 | 118 ·92 |
| 4 | 13 54 44 ·62 | 15 53 48 ·1 | 118 ·28 |
| 5 | 13 56 37 ·27 | 16 5 37 ·8 | 117 ·67 |
| 6 | 13 58 30 ·12 | 16 17 23 ·8 | 117 ·02 |
| 7 | 14 0 23 ·20 | 16 29 5 ·9 | 116 ·37 |
| 8 | 14 2 16 ·49 | 16 40 44 ·1 | 115 ·73 |
| 9 | 14 4 10 ·01 | 16 52 18 ·5 | 115 ·05 |
| 10 | 14 6 3 ·75 | 17 3 48 ·8 | 114 ·38 |
| 11 | 14 7 57 ·72 | 17 15 15 ·1 | 113 ·70 |
| 12 | 14 9 51 ·92 | 17 26 37 ·3 | 113 ·02 |
| 13 | 14 11 46 ·35 | 17 37 55 ·4 | 112 ·32 |
| 14 | 14 13 41 ·01 | 17 49 9 ·3 | 111 ·62 |
| 15 | 14 15 35 ·91 | 18 0 19 ·0 | 110 ·90 |
| 16 | 14 17 31 ·06 | 18 11 24 ·4 | 110 ·18 |
| 17 | 14 19 26 ·44 | 18 22 25 ·5 | 109 ·45 |
| 18 | 14 21 22 ·07 | 18 33 22 ·2 | 108 ·72 |
| 19 | 14 23 17 ·95 | 18 44 14 ·5 | 107 ·97 |
| 20 | 14 25 14 ·07 | 18 55 2 ·3 | 107 ·20 |
| 21 | 14 27 10 ·44 | 19 5 45 ·5 | 106 ·45 |
| 22 | 14 29 7 ·07 | 19 16 24 ·2 | 105 ·67 |
| 23 | 14 31 3 ·96 | 19 26 58 ·2 | 104 ·88 |
| 24 | 14 33 1 ·10 | S. 19 37 27 ·5 | |

| Hour. | Right Ascension. | Declination. | D |
|---|---|---|---|
| | *TUESDAY* 3. | | |
| | h m s | ° ′ ″ | |
| 0 | 14 33 1 ·10 | S. 19 37 27 ·5 | 1 |
| 1 | 14 34 58 ·50 | 19 47 52 ·1 | 1 |
| 2 | 14 36 56 ·16 | 19 58 11 ·9 | 1 |
| 3 | 14 38 54 ·09 | 20 8 26 ·8 | 1 |
| 4 | 14 40 52 ·27 | 20 18 36 ·8 | 1 |
| 5 | 14 42 50 ·73 | 20 28 41 ·9 | 1 |
| 6 | 14 44 49 ·45 | 20 38 41 ·9 | |
| 7 | 14 46 48 ·43 | 20 48 36 ·9 | |
| 8 | 14 48 47 ·69 | 20 58 26 ·8 | |
| 9 | 14 50 47 ·22 | 21 8 11 ·5 | |
| 10 | 14 52 47 ·02 | 21 17 50 ·9 | |
| 11 | 14 54 47 ·09 | 21 27 25 ·1 | |
| 12 | 14 56 47 ·44 | 21 36 54 ·0 | |
| 13 | 14 58 48 ·06 | 21 46 17 ·5 | |
| 14 | 15 0 48 ·96 | 21 55 35 ·5 | |
| 15 | 15 2 50 ·13 | 22 4 48 ·0 | |
| 16 | 15 4 51 ·58 | 22 13 55 ·0 | |
| 17 | 15 6 53 ·31 | 22 22 56 ·4 | |
| 18 | 15 8 55 ·32 | 22 31 52 ·1 | |
| 19 | 15 10 57 ·61 | 22 40 42 ·1 | |
| 20 | 15 13 0 ·17 | 22 49 26 ·3 | |
| 21 | 15 15 3 ·02 | 22 58 4 ·8 | |
| 22 | 15 17 6 ·14 | 23 6 37 ·3 | |
| 23 | 15 19 9 ·55 | S. 23 15 3 ·9 | |
| | *WEDNESDAY* 4. | | |
| 0 | 15 21 13 ·23 | S. 23 23 24 ·5 | |
| 1 | 15 23 17 ·20 | 23 31 39 ·1 | |
| 2 | 15 25 21 ·44 | 23 39 47 ·6 | |
| 3 | 15 27 25 ·97 | 23 47 49 ·9 | |
| 4 | 15 29 30 ·77 | 23 55 46 ·0 | |
| 5 | 15 31 35 ·85 | 24 3 35 ·9 | |
| 6 | 15 33 41 ·21 | 24 11 19 ·5 | |
| 7 | 15 35 46 ·84 | 24 18 56 ·7 | |
| 8 | 15 37 52 ·75 | 24 26 27 ·5 | |
| 9 | 15 39 58 ·93 | 24 33 51 ·8 | |
| 10 | 15 42 5 ·38 | 24 41 9 ·6 | |
| 11 | 15 44 12 ·11 | 24 48 20 ·9 | |
| 12 | 15 46 19 ·11 | 24 55 25 ·5 | |
| 13 | 15 48 26 ·38 | 25 2 23 ·4 | |
| 14 | 15 50 33 ·91 | 25 9 14 ·7 | |
| 15 | 15 52 41 ·72 | 25 15 59 ·1 | |
| 16 | 15 54 49 ·78 | 25 22 36 ·7 | |
| 17 | 15 56 58 ·11 | 25 29 7 ·5 | |
| 18 | 15 59 6 ·70 | 25 35 31 ·3 | |
| 19 | 16 1 15 ·54 | 25 41 48 ·1 | |
| 20 | 16 3 24 ·65 | 25 47 57 ·9 | |
| 21 | 16 5 34 ·01 | 25 54 0 ·7 | |
| 22 | 16 7 43 ·62 | 25 59 56 ·3 | |
| 23 | 16 [illegible] | [illegible] | |
| 24 | 16 [illegible] | | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|
| *THURSDAY* 5. | | |
| h m s | ° ′ ″ | ″ |
| 16 12 3 ·58 | S. 26 11 26 ·0 | 55 ·67 |
| 16 14 13 ·93 | 26 17 0 ·0 | 54 ·45 |
| 16 16 24 ·53 | 26 22 26 ·7 | 53 ·22 |
| 16 18 35 ·36 | 26 27 46 ·0 | 51 ·98 |
| 16 20 46 ·43 | 26 32 57 ·9 | 50 ·75 |
| 16 22 57 ·73 | 26 38 2 ·4 | 49 ·50 |
| 16 25 9 ·26 | 26 42 59 ·4 | 48 ·25 |
| 16 27 21 ·02 | 26 47 48 ·9 | 46 ·97 |
| 16 29 33 ·00 | 26 52 30 ·7 | 45 ·72 |
| 16 31 45 ·20 | 26 57 5 ·0 | 44 ·43 |
| 16 33 57 ·62 | 27 1 31 ·6 | 43 ·15 |
| 16 36 10 ·25 | 27 5 50 ·5 | 41 ·85 |
| 16 38 23 ·09 | 27 10 1 ·6 | 40 ·55 |
| 16 40 36 ·13 | 27 14 4 ·9 | 39 ·27 |
| 16 42 49 ·38 | 27 18 0 ·5 | 37 ·93 |
| 16 45 2 ·82 | 27 21 48 ·1 | 36 ·63 |
| 16 47 16 ·45 | 27 25 27 ·9 | 35 ·30 |
| 16 49 30 ·27 | 27 28 59 ·7 | 33 ·98 |
| 16 51 44 ·27 | 27 32 23 ·6 | 32 ·63 |
| 16 53 58 ·46 | 27 35 39 ·4 | 31 ·30 |
| 16 56 12 ·82 | 27 38 47 ·2 | 29 ·95 |
| 16 58 27 ·35 | 27 41 46 ·9 | 28 ·62 |
| 17 0 42 ·04 | 27 44 38 ·6 | 27 ·25 |
| 17 2 56 ·90 | S. 27 47 22 ·1 | 25 ·88 |
| *FRIDAY* 6. | | |
| 17 5 11 ·91 | S. 27 49 57 ·4 | 24 ·52 |
| 17 7 27 ·08 | 27 52 24 ·5 | 23 ·15 |
| 17 9 42 ·39 | 27 54 43 ·4 | 21 ·78 |
| 17 11 57 ·84 | 27 56 54 ·1 | 20 ·40 |
| 17 14 13 ·44 | 27 58 56 ·5 | 19 ·02 |
| 17 16 29 ·16 | 28 0 50 ·6 | 17 ·62 |
| 17 18 45 ·01 | 28 2 36 ·3 | 16 ·23 |
| 17 21 0 ·98 | 28 4 13 ·7 | 14 ·85 |
| 17 23 17 ·06 | 28 5 42 ·8 | 13 ·43 |
| 17 25 33 ·26 | 28 7 3 ·4 | 12 ·03 |
| 17 27 49 ·56 | 28 8 15 ·6 | 10 ·63 |
| 17 30 5 ·96 | 28 9 19 ·4 | 9 ·23 |
| 17 32 22 ·46 | 28 10 14 ·8 | 7 ·82 |
| 17 34 39 ·04 | 28 11 1 ·7 | 6 ·40 |
| 17 36 55 ·71 | 28 11 40 ·1 | 4 ·98 |
| 17 39 12 ·45 | 28 12 10 ·0 | 3 ·57 |
| 17 41 29 ·27 | 28 12 31 ·4 | 2 ·15 |
| 17 43 46 ·15 | 28 12 44 ·3 | 0 ·72 |
| 17 46 3 ·09 | 28 12 48 ·6 | 0 ·70 |
| 17 48 20 ·09 | 28 12 44 ·4 | 2 ·13 |
| 17 50 37 ·14 | 28 12 31 ·6 | 3 ·55 |
| 17 52 54 ·24 | 28 12 10 ·3 | 5 ·00 |
| 17 55 11 ·37 | 28 11 40 ·3 | 6 ·42 |
| 17 57 28 ·53 | 28 11 1 ·8 | 7 ·85 |
| 17 59 45 ·72 | S. 28 10 14 ·7 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SATURDAY* 7. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 17 59 45 ·72 | S. 28 10 14 ·7 | 9 ·28 |
| 1 | 18 2 2 ·93 | 28 9 19 ·0 | 10 ·73 |
| 2 | 18 4 20 ·16 | 28 8 14 ·6 | 12 ·15 |
| 3 | 18 6 37 ·40 | 28 7 1 ·7 | 13 ·60 |
| 4 | 18 8 54 ·64 | 28 5 40 ·1 | 15 ·03 |
| 5 | 18 11 11 ·88 | 28 4 9 ·9 | 16 ·45 |
| 6 | 18 13 29 ·11 | 28 2 31 ·2 | 17 ·90 |
| 7 | 18 15 46 ·34 | 28 0 43 ·8 | 19 ·32 |
| 8 | 18 18 3 ·54 | 27 58 47 ·9 | 20 ·75 |
| 9 | 18 20 20 ·72 | 27 56 43 ·4 | 22 ·20 |
| 10 | 18 22 37 ·86 | 27 54 30 ·2 | 23 ·60 |
| 11 | 18 24 54 ·98 | 27 52 8 ·6 | 25 ·05 |
| 12 | 18 27 12 ·05 | 27 49 38 ·3 | 26 ·47 |
| 13 | 18 29 29 ·08 | 27 46 59 ·5 | 27 ·88 |
| 14 | 18 31 46 ·05 | 27 44 12 ·2 | 29 ·32 |
| 15 | 18 34 2 ·97 | 27 41 16 ·3 | 30 ·73 |
| 16 | 18 36 19 ·83 | 27 38 11 ·9 | 32 ·15 |
| 17 | 18 38 36 ·63 | 27 34 59 ·0 | 33 ·57 |
| 18 | 18 40 53 ·35 | 27 31 37 ·6 | 34 ·97 |
| 19 | 18 43 9 ·99 | 27 28 7 ·8 | 36 ·38 |
| 20 | 18 45 26 ·56 | 27 24 29 ·5 | 37 ·80 |
| 21 | 18 47 43 ·03 | 27 20 42 ·7 | 39 ·20 |
| 22 | 18 49 59 ·42 | 27 16 47 ·5 | 40 ·60 |
| 23 | 18 52 15 ·71 | S. 27 12 43 ·9 | 42 ·00 |
| | *SUNDAY* 8. | | |
| 0 | 18 54 31 ·90 | S. 27 8 31 ·9 | 43 ·40 |
| 1 | 18 56 47 ·99 | 27 4 11 ·5 | 44 ·77 |
| 2 | 18 59 3 ·97 | 26 59 42 ·9 | 46 ·18 |
| 3 | 19 1 19 ·83 | 26 55 5 ·8 | 47 ·53 |
| 4 | 19 3 35 ·58 | 26 50 20 ·6 | 48 ·93 |
| 5 | 19 5 51 ·20 | 26 45 27 ·0 | 50 ·30 |
| 6 | 19 8 6 ·70 | 26 40 25 ·2 | 51 ·67 |
| 7 | 19 10 22 ·06 | 26 35 15 ·2 | 53 ·03 |
| 8 | 19 12 37 ·29 | 26 29 57 ·0 | 54 ·40 |
| 9 | 19 14 52 ·38 | 26 24 30 ·6 | 55 ·73 |
| 10 | 19 17 7 ·33 | 26 18 56 ·2 | 57 ·10 |
| 11 | 19 19 22 ·14 | 26 13 13 ·6 | 58 ·43 |
| 12 | 19 21 36 ·79 | 26 7 23 ·0 | 59 ·77 |
| 13 | 19 23 51 ·29 | 26 1 24 ·4 | 61 ·12 |
| 14 | 19 26 5 ·63 | 25 55 17 ·7 | 62 ·43 |
| 15 | 19 28 19 ·81 | 25 49 3 ·1 | 63 ·75 |
| 16 | 19 30 33 ·83 | 25 42 40 ·6 | 65 ·07 |
| 17 | 19 32 47 ·68 | 25 36 10 ·2 | 66 ·38 |
| 18 | 19 35 1 ·36 | 25 29 31 ·9 | 67 ·67 |
| 19 | 19 37 14 ·87 | 25 22 45 ·9 | 68 ·98 |
| 20 | 19 39 28 ·21 | 25 15 52 ·0 | 70 ·27 |
| 21 | 19 41 41 ·37 | 25 8 50 ·4 | 71 ·55 |
| 22 | 19 43 54 ·34 | 25 1 41 ·1 | 72 ·83 |
| 23 | 19 46 7 ·14 | 24 54 24 ·1 | 74 ·10 |
| 24 | 19 48 19 ·75 | S. 24 46 59 ·5 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *MONDAY* 9. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 19 48 19·75 | S. 24 46 59·5 | 75·37 |
| 1 | 19 50 32·17 | 24 39 27·3 | 76·62 |
| 2 | 19 52 44·41 | 24 31 47·6 | 77·88 |
| 3 | 19 54 56·46 | 24 24 0·3 | 79·12 |
| 4 | 19 57 8·31 | 24 16 5·6 | 80·35 |
| 5 | 19 59 19·97 | 24 8 3·5 | 81·58 |
| 6 | 20 1 31·43 | 23 59 54·0 | 82·80 |
| 7 | 20 3 42·70 | 23 51 37·2 | 84·02 |
| 8 | 20 5 53·76 | 23 43 13·1 | 85·22 |
| 9 | 20 8 4·63 | 23 34 41·8 | 86·42 |
| 10 | 20 10 15·30 | 23 26 3·3 | 87·60 |
| 11 | 20 12 25·76 | 23 17 17·7 | 88·80 |
| 12 | 20 14 36·02 | 23 8 24·9 | 89·97 |
| 13 | 20 16 46·07 | 22 59 25·1 | 91·13 |
| 14 | 20 18 55·92 | 22 50 18·3 | 92·30 |
| 15 | 20 21 5·57 | 22 41 4·5 | 93·43 |
| 16 | 20 23 15·00 | 22 31 43·9 | 94·58 |
| 17 | 20 25 24·23 | 22 22 16·4 | 95·73 |
| 18 | 20 27 33·26 | 22 12 42·0 | 96·83 |
| 19 | 20 29 42·08 | 22 3 1·0 | 97·97 |
| 20 | 20 31 50·69 | 21 53 13·2 | 99·08 |
| 21 | 20 33 59·09 | 21 43 18·7 | 100·17 |
| 22 | 20 36 7·29 | 21 33 17·7 | 101·28 |
| 23 | 20 38 15·28 | S. 21 23 10·0 | 102·35 |
| | *TUESDAY* 10. | | |
| 0 | 20 40 23·06 | S. 21 12 55·9 | 103·43 |
| 1 | 20 42 30·64 | 21 2 35·3 | 104·50 |
| 2 | 20 44 38·01 | 20 52 8·3 | 105·55 |
| 3 | 20 46 45·18 | 20 41 35·0 | 106·62 |
| 4 | 20 48 52·14 | 20 30 55·3 | 107·65 |
| 5 | 20 50 58·90 | 20 20 9·4 | 108·68 |
| 6 | 20 53 5·46 | 20 9 17·3 | 109·72 |
| 7 | 20 55 11·82 | 19 58 19·0 | 110·72 |
| 8 | 20 57 17·97 | 19 47 14·7 | 111·75 |
| 9 | 20 59 23·93 | 19 36 4·2 | 112·72 |
| 10 | 21 1 29·69 | 19 24 47·9 | 113·73 |
| 11 | 21 3 35·25 | 19 13 25·5 | 114·70 |
| 12 | 21 5 40·62 | 19 1 57·3 | 115·68 |
| 13 | 21 7 45·80 | 18 50 23·2 | 116·63 |
| 14 | 21 9 50·79 | 18 38 43·4 | 117·60 |
| 15 | 21 11 55·59 | 18 26 57·8 | 118·53 |
| 16 | 21 14 0·21 | 18 15 6·6 | 119·48 |
| 17 | 21 16 4·64 | 18 3 9·7 | 120·40 |
| 18 | 21 18 8·88 | 17 51 7·3 | 121·32 |
| 19 | 21 20 12·95 | 17 38 59·4 | 122·23 |
| 20 | 21 22 16·84 | 17 26 46·0 | 123·13 |
| 21 | 21 24 20·55 | 17 14 27·2 | 124·02 |
| 22 | 21 26 24·08 | 17 2 3·1 | 124·90 |
| 23 | 21 28 27·45 | 16 49 33·7 | 125·78 |
| 24 | 21 30 30·64 | S. 16 36 59·0 | |

| Hour. | Right Ascension. | Declination. |
|---|---|---|
| | *WEDNESDAY* 11. | |
| | h m s | ° ′ ″ |
| 0 | 21 30 30·64 | S. 16 36 59·[illegible] |
| 1 | 21 32 33·67 | 16 24 19·[illegible] |
| 2 | 21 34 36·54 | 16 11 34·[illegible] |
| 3 | 21 36 39·25 | 15 58 44·[illegible] |
| 4 | 21 38 41·80 | 15 45 49·1 |
| 5 | 21 40 44·19 | 15 32 49·1 |
| 6 | 21 42 46·43 | 15 19 44·2 |
| 7 | 21 44 48·52 | 15 6 34·4 |
| 8 | 21 46 50·47 | 14 53 19·8 |
| 9 | 21 48 52·27 | 14 40 0·5 |
| 10 | 21 50 53·93 | 14 26 36·5 |
| 11 | 21 52 55·46 | 14 13 7·9 |
| 12 | 21 54 56·85 | 13 59 34·7 |
| 13 | 21 56 58·11 | 13 45 57·0 |
| 14 | 21 58 59·25 | 13 32 14·8 |
| 15 | 22 1 0·26 | 13 18 28·[illegible] |
| 16 | 22 3 1·16 | 13 4 37·[illegible] |
| 17 | 22 5 1·94 | 12 50 42·[illegible] |
| 18 | 22 7 2·61 | 12 36 42·[illegible] |
| 19 | 22 9 3·17 | 12 22 38·[illegible] |
| 20 | 22 11 3·63 | 12 8 31·[illegible] |
| 21 | 22 13 3·99 | 11 54 19·[illegible] |
| 22 | 22 15 4·25 | 11 40 3·[illegible] |
| 23 | 22 17 4·43 | S. 11 25 43·[illegible] |
| | *THURSDAY* 12. | |
| 0 | 22 19 4·51 | S. 11 11 19·[illegible] |
| 1 | 22 21 4·52 | 10 56 52·[illegible] |
| 2 | 22 23 4·44 | 10 42 21·[illegible] |
| 3 | 22 25 4·29 | 10 27 45·[illegible] |
| 4 | 22 27 4·07 | 10 13 7·[illegible] |
| 5 | 22 29 3·79 | 9 58 24·[illegible] |
| 6 | 22 31 3·44 | 9 43 38·[illegible] |
| 7 | 22 33 3·04 | 9 28 49·[illegible] |
| 8 | 22 35 2·58 | 9 13 56·[illegible] |
| 9 | 22 37 2·08 | 8 59 0·[illegible] |
| 10 | 22 39 1·53 | 8 44 1·[illegible] |
| 11 | 22 41 0·94 | 8 28 58·[illegible] |
| 12 | 22 43 0·32 | 8 13 52·[illegible] |
| 13 | 22 44 59·67 | 7 58 43·[illegible] |
| 14 | 22 46 58·99 | 7 43 30·[illegible] |
| 15 | 22 48 58·29 | 7 28 15·[illegible] |
| 16 | 22 50 57·58 | 7 12 57·[illegible] |
| 17 | 22 52 56·86 | 6 57 36·[illegible] |
| 18 | 22 54 56·13 | 6 42 12·[illegible] |
| 19 | 22 56 55·40 | 6 26 45·[illegible] |
| 20 | 22 58 54·67 | 6 11 16·[illegible] |
| 21 | 23 0 53·96 | 5 55 44·[illegible] |
| 22 | 23 2 53·26 | 5 40 9·[illegible] |
| 23 | 23 4 52·58 | 5 24 32·[illegible] |
| 24 | 23 6 51·92 | S. 5 8 53·[illegible] |

## MEAN TIME.

### HE MOON'S RIGHT ASCENSION AND DECLINATION.

| Ascension. | Declination. | Diff. Dec. for $10^m$. | Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. |
|---|---|---|---|---|---|---|
| *FRIDAY* 13. | | | | *SUNDAY* 15. | | |
| m s | ° ′ ″ | ″ | | h m s | ° ′ ″ | ″ |
| 6 51 ·92 | S. 5 8 53 ·1 | 157 ·00 | 0 | 0 44 37 ·04 | N. 7 48 29 ·4 | 162 ·07 |
| 8 51 ·30 | 4 53 11 ·1 | 157 ·38 | 1 | 0 46 44 ·42 | 8 4 41 ·8 | 161 ·82 |
| 0 50 ·70 | 4 37 26 ·8 | 157 ·77 | 2 | 0 48 52 ·11 | 8 20 52 ·7 | 161 ·58 |
| 2 50 ·15 | 4 21 40 ·2 | 158 ·13 | 3 | 0 51 0 ·12 | 8 37 2 ·2 | 161 ·30 |
| 4 49 ·65 | 4 5 51 ·4 | 158 ·50 | 4 | 0 53 8 ·45 | 8 53 10 ·0 | 161 ·02 |
| 6 49 ·20 | 3 50 0 ·4 | 158 ·83 | 5 | 0 55 17 ·11 | 9 9 16 ·1 | 160 ·72 |
| 8 48 ·80 | 3 34 7 ·4 | 159 ·18 | 6 | 0 57 26 ·10 | 9 25 20 ·4 | 160 ·40 |
| 0 48 ·46 | 3 18 12 ·3 | 159 ·50 | 7 | 0 59 35 ·43 | 9 41 22 ·8 | 160 ·07 |
| 2 48 ·19 | 3 2 15 ·3 | 159 ·80 | 8 | 1 1 45 ·11 | 9 57 23 ·2 | 159 ·72 |
| 4 47 ·99 | 2 46 16 ·5 | 160 ·13 | 9 | 1 3 55 ·13 | 10 13 21 ·5 | 159 ·33 |
| 6 47 ·87 | 2 30 15 ·8 | 160 ·42 | 10 | 1 6 5 ·51 | 10 29 17 ·5 | 158 ·95 |
| 8 47 ·84 | 2 14 13 ·3 | 160 ·68 | 11 | 1 8 16 ·25 | 10 45 11 ·2 | 158 ·55 |
| 0 47 ·89 | 1 58 9 ·2 | 160 ·97 | 12 | 1 10 27 ·36 | 11 1 2 ·5 | 158 ·12 |
| 2 48 ·04 | 1 42 3 ·4 | 161 ·22 | 13 | 1 12 38 ·84 | 11 16 51 ·2 | 157 ·68 |
| 4 48 ·28 | 1 25 56 ·1 | 161 ·45 | 14 | 1 14 50 ·70 | 11 32 37 ·3 | 157 ·20 |
| 6 48 ·63 | 1 9 47 ·4 | 161 ·70 | 15 | 1 17 2 ·94 | 11 48 20 ·5 | 156 ·73 |
| 8 49 ·09 | 0 53 37 ·2 | 161 ·92 | 16 | 1 19 15 ·57 | 12 4 0 ·9 | 156 ·25 |
| 0 49 ·66 | 0 37 25 ·7 | 162 ·13 | 17 | 1 21 28 ·60 | 12 19 38 ·4 | 155 ·70 |
| 2 50 ·36 | 0 21 12 ·9 | 162 ·32 | 18 | 1 23 42 ·03 | 12 35 12 ·6 | 155 ·18 |
| 4 51 ·19 | S. 0 4 59 ·0 | 162 ·52 | 19 | 1 25 55 ·86 | 12 50 43 ·7 | 154 ·63 |
| 6 52 ·15 | N. 0 11 16 ·1 | 162 ·68 | 20 | 1 28 10 ·10 | 13 6 11 ·5 | 154 ·03 |
| 8 53 ·25 | 0 27 32 ·2 | 162 ·83 | 21 | 1 30 24 ·76 | 13 21 35 ·7 | 153 ·47 |
| 0 54 ·50 | 0 43 49 ·2 | 162 ·98 | 22 | 1 32 39 ·83 | 13 36 56 ·5 | 152 ·83 |
| 2 55 ·89 | N. 1 0 7 ·1 | 163 ·13 | 23 | 1 34 55 ·33 | N. 13 52 13 ·5 | 152 ·20 |
| *SATURDAY* 14. | | | | *MONDAY* 16. | | |
| 4 57 ·45 | N. 1 16 25 ·9 | 163 ·25 | 0 | 1 37 11 ·26 | N. 14 7 26 ·7 | 151 ·55 |
| 6 59 ·17 | 1 32 45 ·4 | 163 ·35 | 1 | 1 39 27 ·62 | 14 22 36 ·0 | 150 ·87 |
| 9 1 ·05 | 1 49 5 ·5 | 163 ·45 | 2 | 1 41 44 ·42 | 14 37 41 ·2 | 150 ·18 |
| 1 3 ·11 | 2 5 26 ·2 | 163 ·55 | 3 | 1 44 1 ·67 | 14 52 42 ·3 | 149 ·47 |
| 3 5 ·35 | 2 21 47 ·5 | 163 ·60 | 4 | 1 46 19 ·36 | 15 7 39 ·1 | 148 ·73 |
| 5 7 ·78 | 2 38 9 ·1 | 163 ·67 | 5 | 1 48 37 ·51 | 15 22 31 ·5 | 147 ·97 |
| 7 10 ·40 | 2 54 31 ·1 | 163 ·70 | 6 | 1 50 56 ·11 | 15 37 19 ·3 | 147 ·20 |
| 9 13 ·22 | 3 10 53 ·3 | 163 ·73 | 7 | 1 53 15 ·17 | 15 52 2 ·5 | 146 ·38 |
| 1 16 ·24 | 3 27 15 ·7 | 163 ·75 | 8 | 1 55 34 ·69 | 16 6 40 ·8 | 145 ·58 |
| 3 19 ·47 | 3 43 38 ·2 | 163 ·77 | 9 | 1 57 54 ·69 | 16 21 14 ·3 | 144 ·73 |
| 5 22 ·91 | 4 0 0 ·8 | 163 ·73 | 10 | 2 0 15 ·15 | 16 35 42 ·7 | 143 ·87 |
| 7 26 ·58 | 4 16 23 ·2 | 163 ·72 | 11 | 2 2 36 ·09 | 16 50 5 ·9 | 142 ·98 |
| 9 30 ·47 | 4 32 45 ·5 | 163 ·67 | 12 | 2 4 57 ·51 | 17 4 23 ·8 | 142 ·08 |
| 1 34 ·59 | 4 49 7 ·5 | 163 ·63 | 13 | 2 7 19 ·41 | 17 18 36 ·3 | 141 ·15 |
| 3 38 ·96 | 5 5 29 ·3 | 163 ·55 | 14 | 2 9 41 ·79 | 17 32 43 ·2 | 140 ·22 |
| 5 43 ·56 | 5 21 50 ·6 | 163 ·47 | 15 | 2 12 4 ·66 | 17 46 44 ·5 | 139 ·23 |
| 7 48 ·42 | 5 38 11 ·4 | 163 ·37 | 16 | 2 14 28 ·03 | 18 0 39 ·9 | 138 ·23 |
| 9 53 ·54 | 5 54 31 ·6 | 163 ·27 | 17 | 2 16 51 ·88 | 18 14 29 ·3 | 137 ·23 |
| 1 58 ·92 | 6 10 51 ·2 | 163 ·13 | 18 | 2 19 16 ·23 | 18 28 12 ·7 | 136 ·18 |
| 4 4 ·57 | 6 27 10 ·0 | 162 ·98 | 19 | 2 21 41 ·08 | 18 41 49 ·8 | 135 ·12 |
| 6 10 ·49 | 6 43 27 ·9 | 162 ·83 | 20 | 2 24 6 ·43 | 18 55 20 ·5 | 134 ·03 |
| 8 16 ·69 | 6 59 44 ·9 | 162 ·67 | 21 | 2 26 32 ·28 | 19 8 44 ·7 | 132 ·93 |
| 0 23 ·18 | 7 16 0 ·9 | 162 ·48 | 22 | 2 28 58 ·64 | 19 22 2 ·3 | 131 ·82 |
| 2 29 ·96 | 7 32 15 ·8 | 162 ·27 | 23 | 2 31 25 ·50 | 19 35 13 ·2 | 130 ·65 |
| 4 37 ·04 | N. 7 48 29 ·4 | | 24 | 2 33 52 ·86 | N. 19 48 1[illegible] | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 17. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 2 33 52 ·86 | N. 19 48 17 ·1 | 129 ·48 |
| 1 | 2 36 20 ·73 | 20 1 14 ·0 | 128 ·28 |
| 2 | 2 38 49 ·11 | 20 14 3 ·7 | 127 ·07 |
| 3 | 2 41 18 ·00 | 20 26 46 ·1 | 125 ·82 |
| 4 | 2 43 47 ·40 | 20 39 21 ·0 | 124 ·57 |
| 5 | 2 46 17 ·31 | 20 51 48 ·4 | 123 ·27 |
| 6 | 2 48 47 ·74 | 21 4 8 ·0 | 121 ·95 |
| 7 | 2 51 18 ·67 | 21 16 19 ·7 | 120 ·63 |
| 8 | 2 53 50 ·10 | 21 28 23 ·5 | 119 ·27 |
| 9 | 2 56 22 ·05 | 21 40 19 ·1 | 117 ·88 |
| 10 | 2 58 54 ·50 | 21 52 6 ·4 | 116 ·48 |
| 11 | 3 1 27 ·46 | 22 3 45 ·3 | 115 ·07 |
| 12 | 3 4 0 ·92 | 22 15 15 ·7 | 113 ·62 |
| 13 | 3 6 34 ·89 | 22 26 37 ·4 | 112 ·15 |
| 14 | 3 9 9 ·35 | 22 37 50 ·3 | 110 ·67 |
| 15 | 3 11 44 ·31 | 22 48 54 ·3 | 109 ·13 |
| 16 | 3 14 19 ·77 | 22 59 49 ·1 | 107 ·62 |
| 17 | 3 16 55 ·72 | 23 10 34 ·8 | 106 ·05 |
| 18 | 3 19 32 ·16 | 23 21 11 ·1 | 104 ·47 |
| 19 | 3 22 9 ·09 | 23 31 37 ·9 | 102 ·85 |
| 20 | 3 24 46 ·49 | 23 41 55 ·0 | 101 ·25 |
| 21 | 3 27 24 ·38 | 23 52 2 ·5 | 99 ·60 |
| 22 | 3 30 2 ·73 | 24 2 0 ·1 | 97 ·92 |
| 23 | 3 32 41 ·55 | N. 24 11 47 ·6 | 96 ·25 |
| | *WEDNESDAY* 18. | | |
| 0 | 3 35 20 ·84 | N. 24 21 25 ·1 | 94 ·53 |
| 1 | 3 38 0 ·59 | 24 30 52 ·3 | 92 ·80 |
| 2 | 3 40 40 ·79 | 24 40 9 ·1 | 91 ·07 |
| 3 | 3 43 21 ·43 | 24 49 15 ·5 | 89 ·28 |
| 4 | 3 46 2 ·52 | 24 58 11 ·2 | 87 ·48 |
| 5 | 3 48 44 ·03 | 25 6 56 ·1 | 85 ·68 |
| 6 | 3 51 25 ·98 | 25 15 30 ·2 | 83 ·87 |
| 7 | 3 54 8 ·34 | 25 23 53 ·4 | 82 ·02 |
| 8 | 3 56 51 ·11 | 25 32 5 ·5 | 80 ·13 |
| 9 | 3 59 34 ·28 | 25 40 6 ·3 | 78 ·27 |
| 10 | 4 2 17 ·85 | 25 47 55 ·9 | 76 ·37 |
| 11 | 4 5 1 ·80 | 25 55 34 ·1 | 74 ·45 |
| 12 | 4 7 46 ·13 | 26 3 0 ·8 | 72 ·52 |
| 13 | 4 10 30 ·83 | 26 10 15 ·9 | 70 ·55 |
| 14 | 4 13 15 ·89 | 26 17 19 ·2 | 68 ·58 |
| 15 | 4 16 1 ·30 | 26 24 10 ·7 | 66 ·62 |
| 16 | 4 18 47 ·04 | 26 30 50 ·4 | 64 ·60 |
| 17 | 4 21 33 ·11 | 26 37 18 ·0 | 62 ·60 |
| 18 | 4 24 19 ·50 | 26 43 33 ·6 | 60 ·57 |
| 19 | 4 27 6 ·19 | 26 49 37 ·0 | 58 ·52 |
| 20 | 4 29 53 ·18 | 26 55 28 ·1 | 56 ·48 |
| 21 | 4 32 40 ·46 | 27 1 7 ·0 | 54 ·40 |
| 22 | 4 35 28 ·01 | 27 6 33 ·4 | 52 ·33 |
| 23 | 4 38 15 ·81 | 27 11 47 ·4 | 50 ·23 |
| 24 | 4 41 3 ·87 | N. 27 16 48 ·8 | |

| Hour. | Right Ascension. | Declination. |
|---|---|---|
| | *THURSDAY* 19. | |
| | h m s | ° ′ ″ |
| 0 | 4 41 3 ·87 | N. 27 16 48 ·8 |
| 1 | 4 43 52 ·17 | 27 21 37 ·6 |
| 2 | 4 46 40 ·69 | 27 26 13 ·7 |
| 3 | 4 49 29 ·42 | 27 30 37 ·1 |
| 4 | 4 52 18 ·34 | 27 34 47 ·7 |
| 5 | 4 55 7 ·46 | 27 38 45 ·4 |
| 6 | 4 57 56 ·74 | 27 42 30 ·3 |
| 7 | 5 0 46 ·18 | 27 46 2 ·2 |
| 8 | 5 3 35 ·76 | 27 49 21 ·1 |
| 9 | 5 6 25 ·47 | 27 52 27 ·0 |
| 10 | 5 9 15 ·29 | 27 55 19 ·8 |
| 11 | 5 12 5 ·22 | 27 57 59 ·5 |
| 12 | 5 14 55 ·23 | 28 0 26 ·1 |
| 13 | 5 17 45 ·32 | 28 2 39 ·5 |
| 14 | 5 20 35 ·46 | 28 4 39 ·7 |
| 15 | 5 23 25 ·65 | 28 6 26 ·8 |
| 16 | 5 26 15 ·86 | 28 8 0 ·6 |
| 17 | 5 29 6 ·09 | 28 9 21 ·3 |
| 18 | 5 31 56 ·31 | 28 10 28 ·7 |
| 19 | 5 34 46 ·52 | 28 11 23 ·0 |
| 20 | 5 37 36 ·70 | 28 12 4 ·0 |
| 21 | 5 40 26 ·83 | 28 12 31 ·9 |
| 22 | 5 43 16 ·90 | 28 12 46 ·5 |
| 23 | 5 46 6 ·89 | N. 28 12 48 ·0 |
| | *FRIDAY* 20. | |
| 0 | 5 48 56 ·80 | N. 28 12 36 ·4 |
| 1 | 5 51 46 ·60 | 28 12 11 ·6 |
| 2 | 5 54 36 ·28 | 28 11 33 ·7 |
| 3 | 5 57 25 ·82 | 28 10 42 ·8 |
| 4 | 6 0 15 ·22 | 28 9 38 ·9 |
| 5 | 6 3 4 ·46 | 28 8 21 ·9 |
| 6 | 6 5 53 ·52 | 28 6 52 ·0 |
| 7 | 6 8 42 ·39 | 28 5 9 ·2 |
| 8 | 6 11 31 ·05 | 28 3 13 ·5 |
| 9 | 6 14 19 ·50 | 28 1 5 ·1 |
| 10 | 6 17 7 ·72 | 27 58 43 ·9 |
| 11 | 6 19 55 ·69 | 27 56 9 ·9 |
| 12 | 6 22 43 ·41 | 27 53 23 ·4 |
| 13 | 6 25 30 ·86 | 27 50 24 ·3 |
| 14 | 6 28 18 ·02 | 27 47 12 ·6 |
| 15 | 6 31 4 ·88 | 27 43 48 ·6 |
| 16 | 6 33 51 ·44 | 27 40 12 ·2 |
| 17 | 6 36 37 ·68 | 27 36 23 ·5 |
| 18 | 6 39 23 ·58 | 27 32 22 ·7 |
| 19 | 6 42 [illegible] | |
| 20 | 6 [illegible] | |
| 21 | | |
| 22 | | |
| 23 | | |
| 24 | | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| ht Ascension. | Declination. | Diff. Dec. for 10m. | Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|---|---|---|
| *SATURDAY* 21. | | | *MONDAY* 23. | | | |
| m s | ° ′ ″ | ″ | | h m s | ° ′ ″ | ″ |
| 55 51·38 | N.27 4 6·5 | 53·95 | 0 | 8 56 53·41 | N.19 44 24·5 | 122·58 |
| 58 34·64 | 26 58 42·8 | 55·85 | 1 | 8 59 11·21 | 19 32 9·0 | 123·50 |
| 1 17·48 | 26 53 7·7 | 57·75 | 2 | 9 1 28·46 | 19 19 48·0 | 124·40 |
| 3 59·89 | 26 47 21·2 | 59·62 | 3 | 9 3 45·18 | 19 7 21·6 | 125·27 |
| 6 41·87 | 26 41 23·5 | 61·47 | 4 | 9 6 1·36 | 18 54 50·0 | 126·13 |
| 9 23·40 | 26 35 14·7 | 63·32 | 5 | 9 8 17·00 | 18 42 13·2 | 126·95 |
| 12 4·48 | 26 28 54·8 | 65·12 | 6 | 9 10 32·12 | 18 29 31·5 | 127·78 |
| 14 45·10 | 26 22 24·1 | 66·93 | 7 | 9 12 46·71 | 18 16 44·8 | 128·57 |
| 17 25·25 | 26 15 42·5 | 68·70 | 8 | 9 15 0·77 | 18 3 53·4 | 129·35 |
| 20 4·92 | 26 8 50·3 | 70·45 | 9 | 9 17 14·32 | 17 50 57·3 | 130·12 |
| 22 44·10 | 26 1 47·6 | 72·22 | 10 | 9 19 27·35 | 17 37 56·6 | 130·85 |
| 25 22·80 | 25 54 34·3 | 73·92 | 11 | 9 21 39·86 | 17 24 51·5 | 131·58 |
| 28 1·00 | 25 47 10·8 | 75·62 | 12 | 9 23 51·87 | 17 11 42·0 | 132·28 |
| 30 38·69 | 25 39 37·1 | 77·30 | 13 | 9 26 3·38 | 16 58 28·3 | 132·97 |
| 33 15·87 | 25 31 53·3 | 78·97 | 14 | 9 28 14·38 | 16 45 10·5 | 133·63 |
| 35 52·54 | 25 23 59·5 | 80·58 | 15 | 9 30 24·90 | 16 31 48·7 | 134·30 |
| 38 28·69 | 25 15 56·0 | 82·22 | 16 | 9 32 34·92 | 16 18 22·9 | 134·92 |
| 41 4·31 | 25 7 42·7 | 83·80 | 17 | 9 34 44·45 | 16 4 53·4 | 135·55 |
| 43 39·40 | 24 59 19·9 | 85·38 | 18 | 9 36 53·51 | 15 51 20·1 | 136·13 |
| 46 13·95 | 24 50 47·6 | 86·93 | 19 | 9 39 2·09 | 15 37 43·3 | 136·73 |
| 48 47·97 | 24 42 6·0 | 88·47 | 20 | 9 41 10·20 | 15 24 2·9 | 137·28 |
| 51 21·44 | 24 33 15·2 | 89·98 | 21 | 9 43 17·84 | 15 10 19·2 | 137·83 |
| 53 54·36 | 24 24 15·3 | 91·47 | 22 | 9 45 25·02 | 14 56 32·2 | 138·38 |
| 56 26·74 | N.24 15 6·5 | 92·93 | 23 | 9 47 31·75 | N.14 42 41·9 | 138·88 |
| *SUNDAY* 22. | | | *TUESDAY* 24. | | | |
| 58 58·56 | N.24 5 48·9 | 94·38 | 0 | 9 49 38·02 | N.14 28 48·6 | 139·38 |
| 1 29·83 | 23 56 22·6 | 95·80 | 1 | 9 51 43·85 | 14 14 52·3 | 139·88 |
| 4 0·53 | 23 46 47·8 | 97·20 | 2 | 9 53 49·24 | 14 0 53·0 | 140·33 |
| 6 30·68 | 23 37 4·6 | 98·58 | 3 | 9 55 54·20 | 13 46 51·0 | 140·80 |
| 9 0·27 | 23 27 13·1 | 99·93 | 4 | 9 57 58·72 | 13 32 46·2 | 141·23 |
| 11 29·29 | 23 17 13·5 | 101·27 | 5 | 10 0 2·82 | 13 18 38·8 | 141·67 |
| 13 57·75 | 23 7 5·9 | 102·60 | 6 | 10 2 6·51 | 13 4 28·8 | 142·07 |
| 16 25·65 | 22 56 50·3 | 103·88 | 7 | 10 4 9·77 | 12 50 16·4 | 142·47 |
| 18 52·97 | 22 46 27·0 | 105·15 | 8 | 10 6 12·63 | 12 36 1·6 | 142·85 |
| 21 19·73 | 22 35 56·1 | 106·42 | 9 | 10 8 15·08 | 12 21 44·5 | 143·22 |
| 23 45·92 | 22 25 17·6 | 107·63 | 10 | 10 10 17·14 | 12 7 25·2 | 143·57 |
| 26 11·55 | 22 14 31·8 | 108·83 | 11 | 10 12 18·80 | 11 53 3·8 | 143·90 |
| 28 36·61 | 22 3 38·8 | 110·02 | 12 | 10 14 20·08 | 11 38 40·4 | 144·23 |
| 31 1·10 | 21 52 38·7 | 111·20 | 13 | 10 16 20·98 | 11 24 15·0 | 144·53 |
| 33 25·02 | 21 41 31·5 | 112·32 | 14 | 10 18 21·50 | 11 9 47·8 | 144·83 |
| 35 48·38 | 21 30 17·6 | 113·45 | 15 | 10 20 21·64 | 10 55 18·8 | 145·13 |
| 38 11·18 | 21 18 56·9 | 114·55 | 16 | 10 22 21·43 | 10 40 48·0 | 145·38 |
| 40 33·41 | 21 7 29·6 | 115·62 | 17 | 10 24 20·86 | 10 26 15·7 | 145·67 |
| 42 55·08 | 20 55 55·9 | 116·68 | 18 | 10 26 19·93 | 10 11 41·7 | 145·90 |
| 45 16·19 | 20 44 15·8 | 117·72 | 19 | 10 28 18·66 | 9 57 6·3 | 146·13 |
| 47 36·74 | 20 32 29·5 | 118·74 | 20 | 10 30 17·04 | 9 42 29·5 | 146·35 |
| 49 56·74 | 20 20 37·1 | 119·73 | 21 | 10 32 15·09 | 9 27 51·4 | 146·57 |
| 52 16·18 | 20 8 38·7 | 120·70 | 22 | 10 34 12·80 | 9 13 12·0 | 146·77 |
| 54 35·07 | 19 56 34·5 | 121·67 | 23 | 10 36 10·20 | 8 58 31·4 | 146·95 |
| 56 53·41 | N.19 44 24·5 | | 24 | 10 38 7·27 | N. 8 43 49·7 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATI

| Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. |
|---|---|---|---|
| | *WEDNESDAY* 25. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 10 38 7·27 | N.8 43 49·7 | 147·12 |
| 1 | 10 40 4·03 | 8 29 7·0 | 147·30 |
| 2 | 10 42 0·48 | 8 14 23·2 | 147·43 |
| 3 | 10 43 56·63 | 7 59 38·6 | 147·58 |
| 4 | 10 45 52·49 | 7 44 53·1 | 147·70 |
| 5 | 10 47 48·06 | 7 30 6·9 | 147·83 |
| 6 | 10 49 43·34 | 7 15 19·9 | 147·93 |
| 7 | 10 51 38·34 | 7 0 32·3 | 148·03 |
| 8 | 10 53 33·07 | 6 45 44·1 | 148·12 |
| 9 | 10 55 27·53 | 6 30 55·4 | 148·20 |
| 10 | 10 57 21·73 | 6 16 6·2 | 148·25 |
| 11 | 10 59 15·67 | 6 1 16·7 | 148·32 |
| 12 | 11 1 9·36 | 5 46 26·8 | 148·37 |
| 13 | 11 3 2·81 | 5 31 36·6 | 148·38 |
| 14 | 11 4 56·01 | 5 16 46·3 | 148·43 |
| 15 | 11 6 48·98 | 5 1 55·7 | 148·43 |
| 16 | 11 8 41·73 | 4 47 5·1 | 148·45 |
| 17 | 11 10 34·25 | 4 32 14·4 | 148·45 |
| 18 | 11 12 26·55 | 4 17 23·7 | 148·43 |
| 19 | 11 14 18·65 | 4 2 33·1 | 148·40 |
| 20 | 11 16 10·53 | 3 47 42·7 | 148·38 |
| 21 | 11 18 2·21 | 3 32 52·4 | 148·35 |
| 22 | 11 19 53·70 | 3 18 2·3 | 148·30 |
| 23 | 11 21 45·00 | N.3 3 12·5 | 148·23 |
| | *THURSDAY* 26. | | |
| 0 | 11 23 36·12 | N.2 48 23·1 | 148·17 |
| 1 | 11 25 27·06 | 2 33 34·1 | 148·10 |
| 2 | 11 27 17·82 | 2 18 45·5 | 148·02 |
| 3 | 11 29 8·42 | 2 3 57·4 | 147·93 |
| 4 | 11 30 58·86 | 1 49 9·8 | 147·83 |
| 5 | 11 32 49·13 | 1 34 22·8 | 147·72 |
| 6 | 11 34 39·26 | 1 19 36·5 | 147·60 |
| 7 | 11 36 29·24 | 1 4 50·9 | 147·48 |
| 8 | 11 38 19·08 | 0 50 6·0 | 147·35 |
| 9 | 11 40 8·78 | 0 35 21·9 | 147·20 |
| 10 | 11 41 58·35 | 0 20 38·7 | 147·07 |
| 11 | 11 43 47·79 | N.0 5 56·3 | 146·90 |
| 12 | 11 45 37·12 | S.0 8 45·1 | 146·73 |
| 13 | 11 47 26·33 | 0 23 25·5 | 146·58 |
| 14 | 11 49 15·43 | 0 38 5·0 | 146·38 |
| 15 | 11 51 4·42 | 0 52 43·3 | 146·22 |
| 16 | 11 52 53·32 | 1 7 20·6 | 146·02 |
| 17 | 11 54 42·12 | 1 21 56·7 | 145·80 |
| 18 | 11 56 30·84 | 1 36 31·5 | 145·62 |
| 19 | 11 58 19·46 | 1 51 5·2 | 145·40 |
| 20 | 12 0 8·01 | 2 5 37·6 | 145·17 |
| 21 | 12 1 56·49 | 2 20 8·6 | 144·95 |
| 22 | 12 3 44·90 | 2 34 38·3 | 144·70 |
| 23 | 12 5 33·24 | 2 49 6·5 | 144·47 |
| 24 | 12 7 21·53 | S.3 3 33·3 | |

| Hour. | Right Ascension. | Declinati |
|---|---|---|
| | *FRIDAY* 27. | |
| | h m s | ° ′ |
| 0 | 12 7 21·53 | S. 3 3 |
| 1 | 12 9 9·77 | 3 17 |
| 2 | 12 10 57·95 | 3 32 |
| 3 | 12 12 46·10 | 3 46 |
| 4 | 12 14 34·20 | 4 1 |
| 5 | 12 16 22·28 | 4 15 |
| 6 | 12 18 10·32 | 4 29 |
| 7 | 12 19 58·34 | 4 43 |
| 8 | 12 21 46·34 | 4 58 |
| 9 | 12 23 34·32 | 5 12 |
| 10 | 12 25 22·30 | 5 26 |
| 11 | 12 27 10·27 | 5 40 |
| 12 | 12 28 58·24 | 5 54 |
| 13 | 12 30 46·22 | 6 8 |
| 14 | 12 32 34·20 | 6 22 |
| 15 | 12 34 22·19 | 6 36 |
| 16 | 12 36 10·21 | 6 50 |
| 17 | 12 37 58·25 | 7 4 |
| 18 | 12 39 46·32 | 7 18 |
| 19 | 12 41 34·42 | 7 32 |
| 20 | 12 43 22·56 | 7 46 |
| 21 | 12 45 10·73 | 8 0 |
| 22 | 12 46 58·96 | 8 13 |
| 23 | 12 48 47·24 | S. 8 27 |
| | *SATURDAY* 28. | |
| 0 | 12 50 35·57 | S. 8 41 |
| 1 | 12 52 23·96 | 8 54 |
| 2 | 12 54 12·42 | 9 8 |
| 3 | 12 56 0·95 | 9 21 |
| 4 | 12 57 49·55 | 9 35 |
| 5 | 12 59 38·22 | 9 48 |
| 6 | 13 1 26·98 | 10 2 |
| 7 | 13 3 15·82 | 10 15 |
| 8 | 13 5 4·76 | 10 29 |
| 9 | 13 6 53·78 | 10 42 |
| 10 | 13 8 42·91 | 10 55 |
| 11 | 13 10 32·14 | 11 8 |
| 12 | 13 12 21·47 | 11 21 |
| 13 | 13 14 10·91 | 11 34 |
| 14 | 13 16 0·47 | 11 47 |
| 15 | 13 17 50·14 | 12 0 |
| 16 | 13 19 39·94 | 12 13 |
| 17 | 13 21 29·87 | 12 26 |
| 18 | 13 23 19·92 | 12 39 |
| 19 | 13 25 10·11 | 12 52 |
| 20 | 13 27 0·44 | 13 4 |
| 21 | 13 28 50·92 | 13 17 |
| 22 | 13 30 41·54 | 13 30 |
| 23 | 13 32 [illegible] | |
| 24 | 13 [illegible] | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| ht Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|
| *SUNDAY* 29. | | |
| m s | ° ′ ″ | ″ |
| 34 23·23 | S. 13 55 18·1 | 124·37 |
| 36 14·32 | 14 7 44·3 | 123·80 |
| 38 5·56 | 14 20 7·1 | 123·20 |
| 39 56·98 | 14 32 26·3 | 122·62 |
| 41 48·56 | 14 44 42·0 | 122·02 |
| 43 40·32 | 14 56 54·1 | 121·42 |
| 45 32·25 | 15 9 2·6 | 120·80 |
| 47 24·36 | 15 21 7·4 | 120·17 |
| 49 16·65 | 15 33 8·4 | 119·55 |
| 51 9·14 | 15 45 5·7 | 118·90 |
| 53 1·81 | 15 56 59·1 | 118·27 |
| 54 54·67 | 16 8 48·7 | 117·62 |
| 56 47·73 | 16 20 34·4 | 116·95 |
| 58 40·99 | 16 32 16·1 | 116·30 |
| 0 34·45 | 16 43 53·9 | 115·62 |
| 2 28·11 | 16 55 27·6 | 114·93 |
| 4 21·99 | 17 6 57·2 | 114·25 |
| 6 16·08 | 17 18 22·7 | 113·57 |
| 8 10·38 | 17 29 44·1 | 112·85 |
| 10 4·90 | 17 41 1·2 | 112·13 |
| 11 59·64 | 17 52 14·0 | 111·42 |
| 13 54·61 | 18 3 22·5 | 110·70 |
| 15 49·80 | 18 14 26·7 | 109·95 |
| 17 45·22 | S. 18 25 26·4 | 109·22 |
| *MONDAY* 30. | | |
| 19 40·88 | S. 18 36 21·7 | 108·47 |
| 21 36·77 | 18 47 12·5 | 107·70 |
| 23 32·90 | 18 57 58·7 | 106·95 |
| 25 29·27 | 19 8 40·4 | 106·17 |
| 27 25·89 | 19 19 17·4 | 105·38 |
| 29 22·74 | 19 29 49·7 | 104·58 |
| 31 19·85 | 19 40 17·2 | 103·80 |
| 33 17·21 | 19 50 40·0 | 102·98 |
| 35 14·82 | 20 0 57·9 | 102·18 |
| 37 12·68 | 20 11 11·0 | 101·33 |
| 39 10·80 | 20 21 19·0 | 100·52 |
| 41 9·17 | 20 31 22·1 | 99·68 |
| 43 7·81 | 20 41 20·2 | 98·83 |
| 45 6·71 | 20 51 13·2 | 97·97 |
| 47 5·86 | 21 1 1·0 | 97·10 |
| 49 5·29 | 21 10 43·6 | 96·23 |
| 51 4·98 | 21 20 21·0 | 95·35 |
| 53 4·94 | 21 29 53·1 | 94·47 |
| 55 5·17 | 21 39 19·9 | 93·57 |
| 57 5·67 | 21 48 41·3 | 92·65 |
| 59 6·44 | 21 57 57·2 | 91·73 |
| 1 7·48 | 22 7 7·6 | 90·82 |
| 3 8·80 | 22 16 12·5 | 89·88 |
| [illegible] 10·40 | 22 25 11·8 | 88·95 |
| [illegible] | S. 22 34 5·5 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 31. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 15 7 12·27 | S. 22 34 5·5 | 88·00 |
| 1 | 15 9 14·42 | 22 42 53·5 | 87·03 |
| 2 | 15 11 16·85 | 22 51 35·7 | 86·07 |
| 3 | 15 13 19·56 | 23 0 12·1 | 85·10 |
| 4 | 15 15 22·55 | 23 8 42·7 | 84·12 |
| 5 | 15 17 25·83 | 23 17 7·4 | 83·12 |
| 6 | 15 19 29·38 | 23 25 26·1 | 82·12 |
| 7 | 15 21 33·21 | 23 33 38·8 | 81·10 |
| 8 | 15 23 37·33 | 23 41 45·4 | 80·08 |
| 9 | 15 25 41·72 | 23 49 45·9 | 79·07 |
| 10 | 15 27 46·40 | 23 57 40·3 | 78·02 |
| 11 | 15 29 51·36 | 24 5 28·4 | 76·98 |
| 12 | 15 31 56·60 | 24 13 10·3 | 75·92 |
| 13 | 15 34 2·12 | 24 20 45·8 | 74·87 |
| 14 | 15 36 7·93 | 24 28 15·0 | 73·80 |
| 15 | 15 38 14·01 | 24 35 37·8 | 72·70 |
| 16 | 15 40 20·38 | 24 42 54·0 | 71·63 |
| 17 | 15 42 27·02 | 24 50 3·8 | 70·52 |
| 18 | 15 44 33·94 | 24 57 6·9 | 69·42 |
| 19 | 15 46 41·14 | 25 4 3·4 | 68·30 |
| 20 | 15 48 48·61 | 25 10 53·2 | 67·18 |
| 21 | 15 50 56·36 | 25 17 36·3 | 66·05 |
| 22 | 15 53 4·38 | 25 24 12·6 | 64·92 |
| 23 | 15 55 12·68 | S. 25 30 42·1 | 63·77 |
| | *WEDNESDAY, JAN.* 1. | | |
| 0 | 15 57 21·24 | S. 25 37 4·7 | |

### PHASES OF THE MOON.

| | d | h | m |
|---|---|---|---|
| ● New Moon - - | 5 | 15 | 0·7 |
| ☽ *First Quarter* - | 13 | 9 | 48·4 |
| ○ Full Moon - - | 20 | 0 | 44·5 |
| ☾ *Last Quarter* - | 27 | 4 | 45·4 |

| | d | h |
|---|---|---|
| ☾ Apogee - - - - - - - | 3 | 6 |
| ☾ Perigee - - - - - - - | 18 | 17 |
| ☾ Apogee - - - - - - - | 30 | 20 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P. L. of diff. | III h. | P. L. of diff. | VI h. | P. L. of diff. | IX h. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ |
| 1 | Pollux | W. | 87 47 55 | 3058 | 89 16 56 | 3062 | 90 45 52 | 3066 | 92 14 |
| | Regulus | W. | 50 55 51 | 3054 | 52 24 57 | 3058 | 53 53 58 | 3061 | 55 22 |
| | Sun | E. | 50 17 28 | 3472 | 48 56 32 | 3477 | 47 35 42 | 3481 | 46 14 |
| 2 | Pollux | W. | 99 38 7 | 3082 | 101 6 39 | 3083 | 102 35 10 | 3083 | 104 3 |
| | Regulus | W. | 62 46 47 | 3076 | 64 15 26 | 3078 | 65 44 3 | 3078 | 67 12 |
| | Spica ♍ | W. | 8 50 22 | 3108 | 10 18 22 | 3102 | 11 46 29 | 3098 | 13 14 |
| | Sun | E. | 39 32 37 | 3509 | 38 12 23 | 3514 | 36 52 14 | 3518 | 35 32 |
| 3 | Regulus | W. | 74 35 28 | 3079 | 76 4 3 | 3079 | 77 32 38 | 3078 | 79 1 |
| | Spica ♍ | W. | 20 36 25 | 3087 | 22 4 51 | 3085 | 23 33 19 | 3083 | 25 1 |
| 8 | Sun | W. | 26 40 47 | 3380 | 28 3 26 | 3365 | 29 26 22 | 3352 | 30 49 |
| | Fomalhaut | E. | 50 51 7 | 3416 | 49 29 9 | 3434 | 48 7 31 | 3453 | 46 46 |
| | α Pegasi | E. | 71 54 10 | 3179 | 70 27 36 | 3177 | 69 1 0 | 3175 | 67 34 |
| 9 | Sun | W. | 37 49 0 | 3281 | 39 13 34 | 3270 | 40 38 21 | 3259 | 42 3 |
| | Fomalhaut | E. | 40 6 53 | 3632 | 38 48 53 | 3677 | 37 31 41 | 3730 | 36 15 |
| | α Pegasi | E. | 60 21 0 | 3177 | 58 54 23 | 3179 | 57 27 48 | 3182 | 56 1 |
| | α Arietis | E. | 101 24 28 | 2888 | 99 51 54 | 2880 | 98 19 10 | 2871 | 96 46 |
| 10 | Sun | W. | 49 11 41 | 3191 | 50 38 1 | 3179 | 52 4 35 | 3168 | 53 31 |
| | Mars | W. | 15 37 16 | 3129 | 17 4 50 | 3111 | 18 32 46 | 3093 | 20 1 |
| | α Pegasi | E. | 48 50 22 | 3225 | 47 24 42 | 3237 | 45 59 17 | 3252 | 44 34 |
| | α Arietis | E. | 88 58 50 | 2818 | 87 24 46 | 2808 | 85 50 29 | 2799 | 84 16 |
| 11 | Sun | W. | 60 48 58 | 3095 | 62 17 14 | 3083 | 63 45 45 | 3069 | 65 14 |
| | Mars | W. | 27 27 13 | 3005 | 28 57 20 | 2991 | 30 27 44 | 2977 | 31 58 |
| | α Pegasi | E. | 37 34 57 | 3413 | 36 12 55 | 3458 | 34 51 44 | 3511 | 33 31 |
| | α Arietis | E. | 76 20 17 | 2738 | 74 44 27 | 2726 | 73 8 22 | 2716 | 71 32 |
| | Aldebaran | E. | 107 39 30 | 2794 | 106 4 54 | 2782 | 104 30 2 | 2769 | 102 54 |
| 12 | Sun | W. | 72 42 36 | 2987 | 74 13 5 | 2973 | 75 43 51 | 2959 | 77 14 |
| | α Aquilæ | W. | 43 30 30 | 4599 | 44 32 56 | 4468 | 45 37 16 | 4351 | 46 43 |
| | Mars | W. | 39 36 9 | 2894 | 41 8 36 | 2880 | 42 41 21 | 2866 | 44 14 |
| | α Arietis | E. | 63 26 41 | 2646 | 61 48 49 | 2635 | 60 10 42 | 2622 | 58 32 |
| | Aldebaran | E. | 94 54 59 | 2693 | 93 18 9 | 2679 | 91 41 1 | 2666 | 90 3 |
| 13 | Sun | W. | 84 54 54 | 2870 | 86 27 52 | 2855 | 88 1 9 | 2839 | 89 34 |
| | α Aquilæ | W. | 52 37 11 | 3809 | 53 52 4 | 3740 | 55 8 9 | 3675 | 56 25 |
| | Mars | W. | 52 4 25 | 2776 | 53 39 24 | 2761 | 55 14 43 | 2746 | 56 50 |
| | α Arietis | E. | 50 16 7 | 2550 | 48 36 3 | 2538 | 46 55 42 | 2525 | 45 15 |
| | Aldebaran | E. | 81 51 59 | 2586 | 80 12 45 | 2573 | 78 33 13 | 2559 | 76 53 |
| 14 | Sun | W. | 97 27 57 | 2745 | 99 3 37 | 2730 | 100 39 37 | 2714 | 102 15 |
| | Mars | W. | 64 53 47 | 2652 | 66 31 31 | 2637 | 68 9 36 | 2621 | 69 48 |
| | α Aquilæ | W. | 63 6 50 | 3360 | 64 29 52 | 3318 | 65 53 43 | 3278 | 67 18 |
| | Fomalhaut | W. | 35 26 17 | 3318 | 36 50 8 | 3231 | 38 15 41 | 3153 | 39 42 |
| | α Arietis | E. | 36 48 0 | 2461 | 35 5 52 | 2452 | 33 23 31 | 2445 | 31 41 |
| | Aldebaran | E. | 68 29 37 | 2482 | 66 47 58 | 2470 | 65 6 2 | 2457 | 63 23 |
| | Pollux | E. | 111 17 24 | 2402 | 109 33 52 | 2387 | 107 49 58 | 2373 | 106 5 |
| 15 | Sun | W. | 110 22 58 | 2622 | 112 1 23 | 2607 | 113 40 9 | 2592 | 115 19 |
| | Mars | W. | 78 5 33 | 2529 | 79 46 6 | 2514 | 81 27 0 | 2499 | 83 8 |
| | α Aquilæ | W. | 74 31 48 | 3081 | 76 0 21 | 3055 | 77 29 26 | 3030 | 78 59 |

## MEAN TIME.

### LUNAR DISTANCES.

| the Month. | Star's Name and Position. | | Midnight. | P. L. of diff. | XV h. | P. L. of diff. | XVIII h. | P. L. of diff. | XXI h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 1 | Pollux | W. | 93 43 30 | 3072 | 95 12 14 | 3075 | 96 40 54 | 3077 | 98 9 32 | 3079 |
| | Regulus | W. | 56 51 48 | 3068 | 58 20 37 | 3070 | 59 49 23 | 3073 | 61 18 6 | 3074 |
| | Sun | E. | 44 54 19 | 3492 | 43 33 46 | 3497 | 42 13 18 | 3501 | 40 52 55 | 3506 |
| 2 | Pollux | W. | 105 32 8 | 3085 | 107 0 36 | 3086 | 108 29 3 | 3086 | 109 57 30 | 3086 |
| | Regulus | W. | 68 41 13 | 3080 | 70 9 47 | 3080 | 71 38 21 | 3081 | 73 6 54 | 3080 |
| | Spica ♍ | W. | 14 42 57 | 3092 | 16 11 16 | 3091 | 17 39 37 | 3089 | 19 8 0 | 3087 |
| | Sun | E. | 34 12 10 | 3527 | 32 52 16 | 3531 | 31 32 26 | 3535 | 30 12 41 | 3541 |
| 3 | Regulus | W. | 80 29 52 | 3076 | 81 58 31 | 3074 | 83 27 12 | 3072 | 84 55 56 | 3071 |
| | Spica ♍ | W. | 26 30 21 | 3079 | 27 58 56 | 3078 | 29 27 33 | 3076 | 30 56 12 | 3074 |
| 8 | Sun | W. | 32 12 58 | 3327 | 33 36 38 | 3315 | 35 0 32 | 3304 | 36 24 39 | 3292 |
| | Fomalhaut | E. | 45 25 21 | 3498 | 44 4 54 | 3525 | 42 44 58 | 3556 | 41 25 36 | 3592 |
| | α Pegasi | E. | 66 7 41 | 3174 | 64 41 1 | 3173 | 63 14 20 | 3173 | 61 47 39 | 3175 |
| 9 | Sun | W. | 43 28 35 | 3237 | 44 54 1 | 3225 | 46 19 41 | 3214 | 47 45 34 | 3202 |
| | Fomalhaut | E. | 35 0 14 | 3859 | 33 46 13 | 3939 | 32 33 33 | 4032 | 31 22 25 | 4139 |
| | α Pegasi | E. | 54 34 51 | 3191 | 53 8 31 | 3197 | 51 42 18 | 3205 | 50 16 15 | 3214 |
| | α Arietis | E. | 95 13 8 | 2855 | 93 39 51 | 2845 | 92 6 22 | 2837 | 90 32 42 | 2828 |
| 10 | Sun | W. | 54 58 24 | 3144 | 56 25 40 | 3132 | 57 53 11 | 3119 | 59 20 57 | 3107 |
| | Mars | W. | 21 29 42 | 3062 | 22 58 38 | 3048 | 24 27 52 | 3033 | 25 57 24 | 3019 |
| | α Pegasi | E. | 43 9 22 | 3290 | 41 44 59 | 3314 | 40 21 4 | 3343 | 38 57 42 | 3375 |
| | α Arietis | E. | 82 41 18 | 2779 | 81 6 23 | 2769 | 79 31 15 | 2759 | 77 55 53 | 2748 |
| 11 | Sun | W. | 66 43 36 | 3043 | 68 12 56 | 3030 | 69 42 32 | 3015 | 71 12 26 | 3002 |
| | Mars | W. | 33 29 23 | 2950 | 35 0 38 | 2936 | 36 32 11 | 2923 | 38 4 1 | 2909 |
| | α Pegasi | E. | 32 12 28 | 3645 | 30 54 42 | 3731 | 29 38 28 | 3833 | 28 24 0 | 3955 |
| | α Arietis | E. | 69 55 30 | 2693 | 68 18 41 | 2681 | 66 41 36 | 2671 | 65 4 17 | 2658 |
| | Aldebaran | E. | 101 19 28 | 2744 | 99 43 47 | 2731 | 98 7 48 | 2718 | 96 31 32 | 2705 |
| 12 | Sun | W. | 78 46 17 | 2930 | 80 17 58 | 2916 | 81 49 57 | 2900 | 83 22 16 | 2885 |
| | α Aquilæ | W. | 47 51 8 | 4142 | 49 0 29 | 4049 | 50 11 20 | 3964 | 51 23 35 | 3884 |
| | Mars | W. | 45 47 46 | 2837 | 47 21 26 | 2821 | 48 55 26 | 2806 | 50 29 46 | 2791 |
| | α Arietis | E. | 56 53 37 | 2598 | 55 14 39 | 2586 | 53 35 25 | 2574 | 51 55 55 | 2561 |
| | Aldebaran | E. | 88 25 52 | 2640 | 86 47 51 | 2627 | 85 9 32 | 2613 | 83 30 54 | 2600 |
| 13 | Sun | W. | 91 8 44 | 2808 | 92 43 1 | 2792 | 94 17 39 | 2777 | 95 52 37 | 2760 |
| | α Aquilæ | W. | 57 43 42 | 3557 | 59 3 3 | 3504 | 60 23 23 | 3453 | 61 44 40 | 3406 |
| | Mars | W. | 58 26 21 | 2715 | 60 2 41 | 2699 | 61 39 22 | 2684 | 63 16 24 | 2668 |
| | α Arietis | E. | 43 34 11 | 2502 | 41 53 1 | 2492 | 40 11 36 | 2480 | 38 29 55 | 2470 |
| | Aldebaran | E. | 75 13 13 | 2534 | 73 32 47 | 2520 | 71 52 2 | 2507 | 70 10 58 | 2495 |
| 14 | Sun | W. | 103 52 42 | 2683 | 105 29 45 | 2668 | 107 7 8 | 2652 | 108 44 53 | 2637 |
| | Mars | W. | 71 26 50 | 2590 | 73 5 59 | 2575 | 74 45 29 | 2559 | 76 25 20 | 2543 |
| | α Aquilæ | W. | 68 43 41 | 3205 | 70 9 44 | 3171 | 71 36 28 | 3139 | 73 3 50 | 3110 |
| | Fomalhaut | W. | 41 11 16 | 3019 | 42 41 5 | 2960 | 44 12 8 | 2907 | 45 44 18 | 2857 |
| | α Arietis | E. | 29 58 19 | 2433 | 28 15 31 | 2430 | 26 32 39 | 2430 | 24 49 47 | 2433 |
| | Aldebaran | E. | 61 41 18 | 2434 | 59 58 32 | 2423 | 58 15 30 | 2412 | 56 32 13 | 2402 |
| | Pollux | E. | 104 21 8 | 2342 | 102 36 10 | 2328 | 100 50 52 | 2314 | 99 5 13 | 2299 |
| 15 | Sun | W. | 116 58 40 | 2564 | 118 38 24 | 2550 | 120 18 28 | 2537 | 121 58 50 | 2523 |
| | Mars | W. | 84 49 51 | 2470 | 86 31 47 | 2455 | 88 14 3 | 2442 | [illegible] | 2428 |
| | α Aquilæ | W. | 80 29 7 | 2985 | 81 59 38 | 2965 | 83 30 35 | [illegible] | [illegible] | 929 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | Noon. | P.L. of diff. | III h. | P.L. of diff. | VI h. | P.L. of diff. | IX h. |
|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ |
| 15 | Fomalhaut W. | 47 17 32 | 2811 | 48 51 45 | 2769 | 50 26 53 | 2731 | 52 2 52 |
| | α Pegasi W. | 27 13 35 | 3593 | 28 32 17 | 3436 | 29 53 53 | 3301 | 31 18 4 |
| | α Arietis E. | 23 6 59 | 2441 | 21 24 22 | 2453 | 19 42 3 | 2476 | 18 0 16 |
| | Aldebaran E. | 54 48 41 | 2393 | 53 4 56 | 2385 | 51 20 59 | 2376 | 49 36 50 |
| | Pollux E. | 97 19 12 | 2285 | 95 32 50 | 2271 | 93 46 8 | 2257 | 91 59 5 |
| 16 | Sun W. | 123 39 31 | 2511 | 125 20 29 | 2500 | 127 1 43 | 2487 | 128 43 15 |
| | Mars W. | 91 39 33 | 2415 | 93 22 46 | 2402 | 95 6 18 | 2389 | 96 50 8 |
| | α Aquilæ W. | 86 33 38 | 2914 | 88 5 39 | 2900 | 89 37 58 | 2887 | 91 10 33 |
| | Fomalhaut W. | 60 14 7 | 2543 | 61 54 20 | 2519 | 63 35 7 | 2496 | 65 16 26 |
| | α Pegasi W. | 38 49 7 | 2780 | 40 24 1 | 2723 | 42 0 10 | 2673 | 43 37 26 |
| | Aldebaran E. | 40 54 10 | 2354 | 39 9 29 | 2357 | 37 24 52 | 2362 | 35 40 23 |
| | Pollux E. | 82 58 48 | 2178 | 81 9 47 | 2166 | 79 20 28 | 2154 | 77 30 51 |
| 17 | Mars W. | 105 33 26 | 2324 | 107 18 51 | 2315 | 109 4 29 | 2306 | 110 50 20 |
| | Fomalhaut W. | 73 49 57 | 2387 | 75 33 50 | 2373 | 77 18 3 | 2361 | 79 2 34 |
| | α Pegasi W. | 51 57 36 | 2454 | 53 39 54 | 2428 | 55 22 48 | 2405 | 57 6 16 |
| | Aldebaran E. | 27 3 7 | 2492 | 25 21 42 | 2543 | 23 41 28 | 2609 | 22 2 45 |
| | Pollux E. | 68 18 38 | 2092 | 66 27 27 | 2084 | 64 36 3 | 2075 | 62 44 26 |
| | Regulus E. | 105 9 31 | 2085 | 103 18 8 | 2079 | 101 26 36 | 2070 | 99 34 50 |
| 18 | Fomalhaut W. | 87 48 39 | 2311 | 89 34 22 | 2307 | 91 20 11 | 2305 | 93 6 3 |
| | α Pegasi W. | 65 50 28 | 2303 | 67 36 23 | 2292 | 69 22 35 | 2282 | 71 9 1 |
| | α Arietis W. | 22 18 20 | 2180 | 24 7 18 | 2156 | 25 56 52 | 2136 | 27 46 56 |
| | Pollux E. | 53 23 51 | 2041 | 51 31 20 | 2037 | 49 38 44 | 2035 | 47 46 4 |
| | Regulus E. | 90 13 16 | 2033 | 88 20 33 | 2028 | 86 27 42 | 2025 | 84 34 47 |
| 19 | α Pegasi W. | 80 3 37 | 2251 | 81 50 49 | 2251 | 83 38 0 | 2252 | 85 25 10 |
| | α Arietis W. | 37 1 53 | 2079 | 38 53 24 | 2076 | 40 45 0 | 2074 | 42 36 39 |
| | Pollux E. | 38 22 22 | 2035 | 36 29 42 | 2038 | 34 37 7 | 2042 | 32 44 38 |
| | Regulus E. | 75 9 32 | 2020 | 73 16 29 | 2022 | 71 23 29 | 2024 | 69 30 32 |
| 20 | α Arietis W. | 51 54 24 | 2089 | 53 45 40 | 2094 | 55 36 48 | 2101 | 57 27 45 |
| | Aldebaran W. | 22 26 49 | 2573 | 24 6 21 | 2511 | 25 47 19 | 2462 | 27 29 26 |
| | Pollux E. | 23 24 53 | 2093 | 21 33 43 | 2107 | 19 42 54 | 2125 | 17 52 33 |
| | Regulus E. | 60 7 27 | 2054 | 58 15 17 | 2061 | 56 23 18 | 2070 | 54 31 33 |
| 21 | α Arietis W. | 66 39 14 | 2158 | 68 28 45 | 2170 | 70 17 58 | 2182 | 72 6 52 |
| | Aldebaran W. | 36 9 40 | 2341 | 37 54 39 | 2337 | 39 39 44 | 2336 | 41 24 51 |
| | Regulus E. | 45 16 29 | 2132 | 43 26 19 | 2145 | 41 36 29 | 2159 | 39 46 59 |
| | Spica ♍ E. | 99 17 9 | 2134 | 97 27 1 | 2146 | 95 37 12 | 2159 | 93 47 43 |
| | Jupiter E. | 118 40 39 | 2212 | 116 52 29 | 2223 | 115 4 36 | 2235 | 113 17 1 |
| | Venus E. | 119 25 16 | 2502 | 117 44 6 | 2515 | 116 3 14 | 2528 | 114 22 40 |
| 22 | α Arietis W. | 81 6 10 | 2269 | 82 52 55 | 2286 | 84 39 15 | 2302 | 86 25 12 |
| | Aldebaran W. | 50 9 3 | 2370 | 51 53 21 | 2381 | 53 37 23 | 2392 | 55 21 9 |
| | Regulus E. | 30 44 51 | 2248 | 28 57 35 | 2264 | 27 10 43 | 2281 | 25 24 16 |
| | Spica ♍ E. | 84 45 41 | 2248 | 82 58 25 | 2264 | 81 11 33 | 2281 | 79 25 6 |
| | Jupiter E. | 104 24 18 | 2323 | 102 38 52 | 2340 | 100 53 50 | 2356 | 99 9 12 |
| | Venus E. | 106 4 57 | 2622 | 104 26 32 | 2639 | 102 48 30 | 2657 | 101 10 52 |
| 23 | Aldebaran W. | 63 55 13 | 2477 | 65 36 59 | 2493 | 67 18 22 | 2509 | 68 59 23 |
| | Pollux W. | 20 27 1 | 2429 | 22 9 54 | 2442 | 23 52 29 | 2456 | 25 34 45 |
| | [illegible]ca ♍ E. | 70 39 15 | 2388 | 68 55 23 | 2406 | 67 11 57 | 2424 | 65 28 57 |

## MEAN TIME.

### LUNAR DISTANCES.

| Star's Name and Position. | Midnight. | P.L. of diff. | XV$^h$. | P.L. of diff. | XVIII$^h$. | P.L. of diff. | XXI$^h$. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|
| | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| Fomalhaut W. | 53 39 40 | 2659 | 55 17 15 | 2627 | 56 55 33 | 2598 | 58 34 31 | 2570 |
| α Pegasi W. | 32 44 33 | 3081 | 34 13 6 | 2991 | 35 43 30 | 2912 | 37 15 34 | 2842 |
| α Arietis E. | 16 19 16 | 2561 | 14 39 28 | 2641 | 13 1 28 | 2763 | 11 26 11 | 2960 |
| Aldebaran E. | 47 52 31 | 2364 | 46 8 4 | 2359 | 44 23 30 | 2355 | 42 38 51 | 2354 |
| Pollux E. | 90 11 41 | 2229 | 88 23 57 | 2217 | 86 35 54 | 2203 | 84 47 31 | 2190 |
| SUN W. | 130 25 2 | 2465 | 132 7 4 | 2455 | 133 49 20 | 2446 | 135 31 49 | 2438 |
| Mars W. | 98 34 15 | 2366 | 100 18 39 | 2355 | 102 3 19 | 2344 | 103 48 15 | 2333 |
| α Aquilæ W. | 92 43 21 | 2868 | 94 16 21 | 2861 | 95 49 30 | 2856 | 97 22 45 | 2852 |
| Fomalhaut W. | 66 58 15 | 2455 | 68 40 32 | 2436 | 70 23 16 | 2418 | 72 6 25 | 2402 |
| α Pegasi W. | 45 15 44 | 2585 | 46 54 59 | 2548 | 48 35 5 | 2514 | 50 15 59 | 2483 |
| Aldebaran E. | 33 56 5 | 2383 | 32 12 6 | 2400 | 30 28 31 | 2422 | 28 45 28 | 2452 |
| Pollux E. | 75 40 56 | 2132 | 73 50 45 | 2121 | 72 0 18 | 2111 | 70 9 36 | 2101 |
| Mars W. | 112 36 22 | 2291 | 114 22 35 | 2283 | 116 8 59 | 2277 | 117 55 32 | 2273 |
| Fomalhaut W. | 80 47 21 | 2339 | 82 32 23 | 2330 | 84 17 38 | 2323 | 86 3 4 | 2317 |
| α Pegasi W. | 58 50 15 | 2364 | 60 34 42 | 2346 | 62 19 35 | 2330 | 64 4 51 | 2315 |
| Aldebaran E. | 20 25 59 | 2811 | 18 51 45 | 2965 | 17 20 48 | 3175 | 15 54 9 | 3468 |
| Pollux E. | 60 52 38 | 2062 | 59 0 40 | 2055 | 57 8 32 | 2050 | 55 16 15 | 2045 |
| Regulus E. | 97 42 52 | 2054 | 95 50 42 | 2048 | 93 58 22 | 2042 | 92 5 53 | 2037 |
| Fomalhaut W. | 94 51 58 | 2302 | 96 37 54 | 2304 | 98 23 48 | 2306 | 100 9 38 | 2309 |
| α Pegasi W. | 72 55 40 | 2266 | 74 42 29 | 2261 | 76 29 26 | 2257 | 78 16 29 | 2254 |
| α Arietis W. | 29 37 24 | 2108 | 31 28 11 | 2098 | 33 19 14 | 2090 | 35 10 29 | 2084 |
| Pollux E. | 45 53 21 | 2031 | 44 0 35 | 2032 | 42 7 50 | 2032 | 40 15 5 | 2033 |
| Regulus E. | 82 41 47 | 2021 | 80 48 45 | 2019 | 78 55 41 | 2019 | 77 2 36 | 2019 |
| α Pegasi W. | 87 12 18 | 2257 | 88 59 21 | 2262 | 90 46 17 | 2267 | 92 33 6 | 2273 |
| α Arietis W. | 44 28 17 | 2075 | 46 19 55 | 2077 | 48 11 30 | 2080 | 50 3 0 | 2084 |
| Pollux E. | 30 52 18 | 2053 | 29 0 7 | 2061 | 27 8 8 | 2070 | 25 16 23 | 2080 |
| Regulus E. | 67 37 40 | 2032 | 65 44 55 | 2036 | 63 52 17 | 2041 | 61 59 47 | 2048 |
| α Arietis W. | 59 18 30 | 2117 | 61 9 3 | 2126 | 62 59 22 | 2136 | 64 49 26 | 2147 |
| Aldebaran W. | 29 12 25 | 2396 | 30 56 6 | 2375 | 32 40 16 | 2359 | 34 24 50 | 2348 |
| Pollux E. | 16 2 43 | 2172 | 14 13 33 | 2207 | 12 25 16 | 2255 | 10 38 10 | 2328 |
| Regulus E. | 52 40 1 | 2088 | 50 48 44 | 2098 | 48 57 42 | 2109 | 47 6 57 | 2120 |
| α Arietis W. | 73 55 26 | 2209 | 75 43 40 | 2224 | 77 31 32 | 2239 | 79 19 2 | 2254 |
| Aldebaran W. | 43 9 56 | 2340 | 44 54 57 | 2346 | 46 39 49 | 2353 | 48 24 32 | 2361 |
| Regulus E. | 37 57 49 | 2186 | 36 9 1 | 2201 | 34 20 35 | 2216 | 32 32 31 | 2232 |
| Spica ♍ E. | 91 58 34 | 2187 | 90 9 47 | 2202 | 88 21 22 | 2217 | 86 33 20 | 2233 |
| Jupiter E. | 111 29 47 | 2262 | 109 42 52 | 2277 | 107 56 19 | 2292 | 106 10 7 | 2307 |
| Venus E. | 112 42 25 | 2557 | 111 2 31 | 2572 | 109 22 58 | 2588 | 107 43 46 | 2604 |
| α Arietis W. | 88 10 43 | 2336 | 89 55 50 | 2354 | 91 40 31 | 2372 | 93 24 46 | 2390 |
| Aldebaran W. | 57 4 37 | 2418 | 58 47 46 | 2431 | 60 30 36 | 2446 | 62 13 5 | 2461 |
| Regulus E. | 23 38 14 | 2315 | 21 52 37 | 2334 | 20 7 27 | 2352 | 18 22 43 | 2370 |
| Spica ♍ E. | 77 39 4 | 2316 | 75 53 28 | 2334 | 74 8 18 | 2351 | 72 23 33 | 2370 |
| Jupiter E. | 97 24 58 | 2390 | 95 41 9 | 2408 | 93 57 46 | 2426 | 92 14 48 | 2444 |
| Venus E. | 99 33 39 | 2694 | 97 56 51 | 2714 | 96 20 29 | 2733 | 94 44 33 | 2752 |
| Aldebaran W. | 70 40 0 | 2543 | 72 20 13 | 2560 | 74 0 3 | 2578 | 75 39 28 | 2595 |
| Pollux W. | 27 16 39 | 2486 | 28 58 12 | 2502 | 30 39 22 | 2519 | 32 20 9 | 2536 |
| Spica ♍ E. | 63 46 24 | 2463 | 62 4 18 | 2482 | 60 22 39 | 2500 | 58 41 26 | 2519 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III h. | P.L. of diff. | VI h. | P.L. of diff. | IX h. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 23 | Jupiter | E. | 90 32 16 | 2463 | 88 50 10 | 2481 | 87 8 30 | 2500 | 85 27 17 | 251 |
| | Venus | E. | 93 9 2 | 2772 | 91 33 58 | 2793 | 89 59 21 | 2814 | 88 25 11 | 283 |
| | Sun | E. | 139 54 51 | 2754 | 138 19 23 | 2772 | 136 44 18 | 2790 | 135 9 37 | 28 |
| 24 | Aldebaran | W. | 77 18 30 | 2613 | 78 57 7 | 2631 | 80 35 20 | 2649 | 82 13 8 | 26 |
| | Pollux | W. | 34 0 32 | 2553 | 35 40 31 | 2570 | 37 20 7 | 2588 | 38 59 18 | 26 |
| | Spica ♍ | E. | 57 0 39 | 2538 | 55 20 18 | 2556 | 53 40 23 | 2576 | 52 0 55 | 25 |
| | Jupiter | E. | 77 7 49 | 2615 | 75 29 14 | 2635 | 73 51 6 | 2654 | 72 13 24 | 26 |
| | Venus | E. | 80 41 3 | 2939 | 79 9 34 | 2960 | 77 38 31 | 2981 | 76 7 55 | 3 |
| | Sun | E. | 127 22 17 | 2904 | 125 50 3 | 2923 | 124 18 13 | 2943 | 122 46 48 | 2 |
| 25 | Aldebaran | W. | 90 16 8 | 2757 | 91 51 33 | 2775 | 93 26 34 | 2792 | 95 1 13 | 2 |
| | Pollux | W. | 47 9 17 | 2693 | 48 46 7 | 2710 | 50 22 34 | 2726 | 51 58 39 | 2 |
| | Regulus | W. | 10 12 59 | 2687 | 11 49 56 | 2705 | 13 26 30 | 2721 | 15 2 42 | 2 |
| | Spica ♍ | E. | 43 49 50 | 2686 | 42 12 51 | 2703 | 40 36 15 | 2721 | 39 0 3 | |
| | Jupiter | E. | 64 11 17 | 2768 | 62 36 7 | 2785 | 61 1 20 | 2804 | 59 26 58 | |
| | Venus | E. | 68 41 29 | 3107 | 67 13 28 | 3128 | 65 45 52 | 3148 | 64 18 41 | |
| | Sun | E. | 115 15 46 | 3057 | 113 46 44 | 3076 | 112 18 5 | 3095 | 110 49 49 | |
| 26 | Pollux | W. | 59 53 39 | 2822 | 61 27 38 | 2837 | 63 1 18 | 2852 | 64 34 39 | |
| | Regulus | W. | 22 58 25 | 2816 | 24 32 32 | 2831 | 26 6 20 | 2845 | 27 39 49 | |
| | Spica ♍ | E. | 31 4 35 | 2820 | 29 30 33 | 2835 | 27 56 51 | 2851 | 26 23 30 | |
| | Jupiter | E. | 51 40 53 | 2910 | 50 8 47 | 2927 | 48 37 2 | 2943 | 47 5 38 | |
| | Venus | E. | 57 8 41 | 3267 | 55 43 51 | 3285 | 54 19 22 | 3303 | 52 55 14 | |
| | Sun | E. | 103 33 48 | 3199 | 102 7 37 | 3215 | 100 41 46 | 3231 | 99 16 13 | |
| 27 | Pollux | W. | 72 17 1 | 2931 | 73 48 40 | 2943 | 75 20 5 | 2954 | 76 51 16 | |
| | Regulus | W. | 35 22 46 | 2925 | 36 54 33 | 2937 | 38 26 5 | 2949 | 39 57 22 | |
| | Jupiter | E. | 39 33 45 | 3040 | 38 4 22 | 3056 | 36 35 18 | 3071 | 35 6 33 | |
| | Venus | E. | 45 59 53 | 3412 | 44 37 50 | 3429 | 43 16 6 | 3447 | 41 54 42 | |
| | Sun | E. | 92 12 52 | 3317 | 90 49 0 | 3330 | 89 25 23 | 3342 | 88 2 0 | |
| 28 | Pollux | W. | 84 23 56 | 3013 | 85 53 53 | 3020 | 87 23 41 | 3029 | 88 53 18 | |
| | Regulus | W. | 47 30 35 | 3007 | 49 0 39 | 3015 | 50 30 33 | 3023 | 52 0 17 | |
| | Jupiter | E. | 27 47 47 | 3173 | 26 21 5 | 3192 | 24 54 46 | 3213 | 23 28 53 | |
| | Venus | E. | 35 12 35 | 3554 | 33 53 10 | 3572 | 32 34 5 | 3591 | 31 15 21 | |
| | Sun | E. | 81 8 21 | 3407 | 79 46 12 | 3416 | 78 24 13 | 3424 | 77 2 24 | |
| 29 | Pollux | W. | 96 19 24 | 3065 | 97 48 16 | 3069 | 99 17 4 | 3074 | 100 45 46 | |
| | Regulus | W. | 59 26 55 | 3059 | 60 55 55 | 3064 | 62 24 49 | 3068 | 63 53 38 | |
| | Venus | E. | 24 47 47 | 3741 | 23 31 43 | 3775 | 22 16 15 | 3815 | 21 1 28 | |
| | Sun | E. | 70 15 22 | 3464 | 68 54 18 | 3470 | 67 33 20 | 3474 | 66 12 27 | |
| 30 | Regulus | W. | 71 16 48 | 3083 | 72 45 19 | 3083 | 74 13 49 | 3084 | 75 42 18 | |
| | Spica ♍ | W. | 17 19 9 | 3096 | 18 47 23 | 3096 | 20 15 38 | 3094 | 21 43 55 | |
| | Sun | E. | 59 29 2 | 3492 | 58 8 29 | 3494 | 56 47 58 | 3495 | 55 27 28 | |
| 31 | Regulus | W. | 83 4 51 | 3079 | 84 33 26 | 3077 | 86 2 4 | 3074 | 87 30 45 | |
| | Spica ♍ | W. | 29 5 44 | 3084 | 30 34 13 | 3082 | 32 2 45 | 3078 | 33 31 21 | |
| | Sun | E. | 48 45 1 | 3493 | 47 24 29 | 3491 | 46 3 55 | 3490 | 44 43 20 | |

## MEAN TIME.

### LUNAR DISTANCES.

| the Month. | Star's Name and Position. | | Midnight. | P.L. of diff. | XV^h. | P.L. of diff. | XVIII^h. | P.L. of diff. | XXI^h. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 3 | Jupiter | E. | 83 46 30 | 2538 | 82 6 10 | 2557 | 80 26 16 | 2577 | 78 46 49 | 2596 |
| | Venus | E. | 86 51 27 | 2855 | 85 18 11 | 2876 | 83 45 21 | 2898 | 82 12 59 | 2918 |
| | Sun | E. | 133 35 20 | 2827 | 132 1 27 | 2846 | 130 27 59 | 2866 | 128 54 56 | 2884 |
| 24 | Aldebaran | W. | 83 50 32 | 2685 | 85 27 32 | 2703 | 87 4 8 | 2721 | 88 40 20 | 2739 |
| | Pollux | W. | 40 38 6 | 2623 | 42 16 29 | 2641 | 43 54 29 | 2658 | 45 32 5 | 2676 |
| | Spica ♍ | E. | 50 21 52 | 2613 | 48 43 14 | 2632 | 47 5 2 | 2649 | 45 27 14 | 2667 |
| | Jupiter | E. | 70 36 8 | 2692 | 68 59 17 | 2711 | 67 22 52 | 2730 | 65 46 52 | 2749 |
| | Venus | E. | 74 37 46 | 3024 | 73 8 3 | 3045 | 71 38 46 | 3066 | 70 9 55 | 3087 |
| | Sun | E. | 121 15 48 | 2981 | 119 45 12 | 3001 | 118 15 0 | 3019 | 116 45 11 | 3038 |
| 25 | Aldebaran | W. | 96 35 28 | 2826 | 98 9 22 | 2844 | 99 42 53 | 2860 | 101 16 3 | 2877 |
| | Pollux | W. | 53 34 21 | 2760 | 55 9 42 | 2776 | 56 44 42 | 2792 | 58 19 21 | 2808 |
| | Regulus | W. | 16 38 33 | 2753 | 18 14 3 | 2769 | 19 49 11 | 2785 | 21 23 58 | 2801 |
| | Spica ♍ | E. | 37 24 13 | 2755 | 35 48 46 | 2772 | 34 13 41 | 2788 | 32 38 57 | 2805 |
| | Jupiter | E. | 57 53 0 | 2840 | 56 19 24 | 2858 | 54 46 11 | 2876 | 53 13 21 | 2893 |
| | Venus | E. | 62 51 54 | 3188 | 61 25 31 | 3208 | 59 59 31 | 3227 | 58 33 54 | 3247 |
| | Sun | E. | 109 21 54 | 3130 | 107 54 21 | 3148 | 106 27 10 | 3165 | 105 0 19 | 3182 |
| 26 | Pollux | W. | 66 7 42 | 2880 | 67 40 27 | 2894 | 69 12 54 | 2906 | 70 45 5 | 2918 |
| | Regulus | W. | 29 12 59 | 2874 | 30 45 51 | 2887 | 32 18 26 | 2901 | 33 50 44 | 2913 |
| | Spica ♍ | E. | 24 50 28 | 2881 | 23 17 45 | 2895 | 21 45 20 | 2910 | 20 13 14 | 2924 |
| | Jupiter | E. | 45 34 35 | 2977 | 44 3 53 | 2992 | 42 33 30 | 3009 | 41 3 28 | 3024 |
| | Venus | E. | 51 31 28 | 3340 | 50 8 3 | 3359 | 48 44 59 | 3377 | 47 22 16 | 3394 |
| | Sun | E. | 97 50 58 | 3261 | 96 26 1 | 3277 | 95 1 22 | 3290 | 93 36 59 | 3304 |
| 27 | Pollux | W. | 78 22 13 | 2975 | 79 52 57 | 2985 | 81 23 28 | 2994 | 82 53 48 | 3004 |
| | Regulus | W. | 41 28 26 | 2969 | 42 59 17 | 2980 | 44 29 55 | 2989 | 46 0 21 | 2999 |
| | Jupiter | E. | 33 38 8 | 3103 | 32 10 2 | 3119 | 30 42 16 | 3137 | 29 14 51 | 3154 |
| | Venus | E. | 40 33 38 | 3481 | 39 12 53 | 3498 | 37 52 27 | 3516 | 36 32 21 | 3535 |
| | Sun | E. | 86 38 51 | 3365 | 85 15 55 | 3377 | 83 53 12 | 3387 | 82 30 41 | 3397 |
| 28 | Pollux | W. | 90 22 47 | 3043 | 91 52 7 | 3048 | 93 21 20 | 3055 | 94 50 25 | 3060 |
| | Regulus | W. | 53 29 52 | 3037 | 54 59 19 | 3043 | 56 28 38 | 3049 | 57 57 50 | 3055 |
| | Jupiter | E. | 22 3 28 | 3264 | 20 38 34 | 3294 | 19 14 15 | 3330 | 17 50 38 | 3372 |
| | Venus | E. | 29 57 0 | 3634 | 28 39 2 | 3657 | 27 21 29 | 3682 | 26 4 23 | 3710 |
| | Sun | E. | 75 40 43 | 3440 | 74 19 12 | 3447 | 72 57 48 | 3453 | 71 36 31 | 3460 |
| 29 | Pollux | W. | 102 14 24 | 3080 | 103 42 58 | 3083 | 105 11 28 | 3085 | 106 39 56 | 3087 |
| | Regulus | W. | 65 22 22 | 3074 | 66 51 3 | 3077 | 68 19 40 | 3079 | 69 48 15 | 3081 |
| | Venus | E. | 19 47 31 | 3917 | 18 34 28 | 3981 | 17 22 30 | 4063 | 16 11 52 | 4162 |
| | Sun | E. | 64 51 39 | 3482 | 63 30 55 | 3486 | 62 10 15 | 3488 | 60 49 37 | 3490 |
| 30 | Regulus | W. | 77 10 47 | 3083 | 78 39 17 | 3083 | 80 7 47 | 3082 | 81 36 18 | 3081 |
| | Spica ♍ | W. | 23 12 14 | 3091 | 24 40 34 | 3091 | 26 8 55 | 3089 | 27 37 18 | 3087 |
| | Sun | E. | 54 6 59 | 3496 | 52 46 30 | 3496 | 51 26 1 | 3495 | 50 5 31 | 3495 |
| 31 | Regulus | W. | 88 59 29 | 3069 | 90 28 17 | 3065 | 91 57 10 | 3061 | 93 26 7 | 3058 |
| | Spica ♍ | W. | 35 0 0 | 3072 | 36 28 44 | 3069 | 37 57 32 | 3065 | 39 26 25 | 3061 |
| | Sun | E. | 43 22 42 | 3486 | 42 2 2 | 3484 | 40 41 20 | 3480 | 39 20 34 | 3478 |

## CONFIGURATIONS OF THE SATELLITES OF JUPITER.

At 18$^h$, Mean Time.

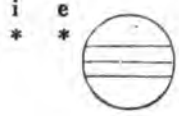
| Day of the Month. | West. | East. |
|---|---|---|
| 1 | ·3 ·1 ○ | 2· ·4 |
| 2 | ·3 2·○ | 1· ·4 |
| 3 | ·1● ·2 ·3 ○ | 4· |
| 4 | 1·○ | ·2 ·3 4· |
| 5 | ○ | ·1 2· 3· 4· |
| 6 | 2· 1· ○ | 4·3· |
| 7 | ·2 4 3·○ | 1· |
| 8 | 3· 4· ·1 ○ | ·2 |
| 9 | 4· ·3 ○ | 1· |
| 10 | 4· ·2 ·3 ·1 ○ | |
| 11 | ·4 ○ | ·2 ·3 |
| 12 | ·4 ○ | ·1 2· ·3 |
| 13 | ·4 2· 1· ○ | 3· |
| 14 | ·4 ·2 3○· | ·1 |
| 15 | 3· ·1 ·4 ○ | ·2 |
| 16 | ·3 ○ | 2· 1· ·4 |
| 17 | ·2 ·3 ·1 ○ | ·4 |
| 18 | ●·2 ○ | 1· ·3 ·4 |
| 19 | ●·1 ○ | 2· ·3 ·4 |
| 20 | 2· 1· ○ | 3· 4· |
| 21 | ·2 ○ | 3· ·1 4· |
| 22 | 3· 1· ○ | ·2 4· |
| 23 | ·3 ○ | 2· 1· 4· |
| 24 | 3 2· 1 4· ○ | |
| 25 | 4· ○ | 3 1· |
| 26 | 4· ○ | 2· ·3 |
| 27 | 4· 2· 1·○ | 3· |
| 28 | ·4 ·2 ○ | 1 3· |
| 29 | ·4 3· 1· ○ | ·2 |
| 30 | ·4 3· ○ | 2· ·1 |
| 31 | 4 3 2· ·1 ○ | |

This Table represents, at 18$^h$ after *Mean Noon* of each day of the month, the relative pos of the images of Jupiter and his Satellites, as they would appear (disregarding their latitud an inverting telescope. Jupiter is indicated by the white circles (○) in the centre of the the Satellites by points. The numerals 1, 2, 3, and 4, annexed to the points, serve to distin the Satellites from each other; and their positions are such as to indicate the directions of the lites' motions, which are in all cases to be considered as *towards the numerals*. When a Satel at its greatest elongation, the point is placed above [illegible] centre of the numeral. A circle (○) at the left or right hand of the page, de[illegible] be side o *on* the disc of Jupiter, and a black circle (●) th Jupiter.

## ECLIPSES OF THE SATELLITES OF JUPITER.

| TELLITE. | Day of the Month. | Mean Time. | Sidereal Time. | PHASE as seen in an inverting Telescope. |
|---|---|---|---|---|
| | | h m s | h m s | |
| I. | 1 | 22 48 32·7 | 15 30 55·9 | Im. |
| | 3 | 17 17 1·1 | 10 6 22·8 | Im. |
| | 5 | 11 45 24·2 | 4 41 44·7 | Im. |
| | 7 | 6 13 51·8 | 23 17 10·9 | Im. |
| | 9 | 0 42 15·0 | 17 52 32·7 | Im. |
| | 10 | 19 10 42·0 | 12 27 58·4 | Im. |
| | 12 | 13 39 4·9 | 7 3 19·9 | Im. |
| | 14 | 8 7 31·7 | 1 38 45·4 | Im. |
| | 16 | 2 35 54·1 | 20 14 6·4 | Im. |
| | 17 | 21 4 20·8 | 14 49 31·7 | Im. |
| | 19 | 15 32 42·5 | 9 24 52·1 | Im. |
| | 21 | 10 1 8·8 | 4 0 17·0 | Im. |
| | 23 | 4 29 30·3 | 22 35 37·2 | Im. |
| | 24 | 22 57 56·4 | 17 11 2·0 | Im. |
| | 26* | 17 26 17·7 | 11 46 21·9 | Im. |
| | 28 | 11 54 43·2 | 6 21 46·1 | Im. |
| | 30 | 6 23 3·8 | 0 57 5·3 | Im. |
| II. | 4 | 8 49 48·8 | 1 41 43·8 | Im. |
| | 7 | 22 6 37·1 | 15 12 32·7 | Im. |
| | 11 | 11 23 21·4 | 4 43 17·6 | Im. |
| | 15 | 0 40 5·4 | 18 14 2·1 | Im. |
| | 18 | 13 56 44·8 | 7 44 42·1 | Im. |
| | 22 | 3 13 22·0 | 21 15 19·9 | Im. |
| | 25 | 16 29 58·8 | 10 45 57·1 | Im. |
| | 29 | 5 46 30·2 | 0 16 29·1 | Im. |
| III. | 3 | 20 50 0·5 | 13 39 57·3 | Im. |
| | 3 | 23 4 11·1 | 15 54 30·0 | Em. |
| | 11 | 0 48 28·9 | 18 6 40·8 | Im. |
| | 11 | 3 2 8·7 | 20 20 42·5 | Em. |
| | 18 | 4 46 21·7 | 22 32 48·6 | Im. |
| | 18 | 6 59 32·7 | 0 46 21·4 | Em. |
| | 25 | 8 44 13·5 | 2 58 55·3 | Im. |
| | 25 | 10 56 58·4 | 5 12 2·1 | Em. |





## APPROXIMATE SIDEREAL TIMES
OF THE
## OCCULTATIONS OF JUPITER'S SATELLITES BY JUPITER,
AND OF THE
## TRANSITS OF THE SATELLITES AND THEIR SHADOWS OVER THE DISC OF THE PLANET.

| Satellite. | Occultations. | | Transits of Satellites. | | Transits of Shadow | |
|---|---|---|---|---|---|---|
| | Immersion. | Emersion. | Ingress. | Egress. | Ingress. | Egress |
| | d h m | d h m | d h m | d h m | d h m | d h |
| I. | | 2 18 21 | 1 18 54 | 1 21 8 | 1 18 16 | 1 20 |
| | | 3 12 58 | 2 13 31 | 2 15 45 | 2 12 52 | 2 15 |
| | | 5 7 35 | 4 8 8 | 4 10 21 | 4 7 27 | 4 9 |
| | | 7 2 12 | 6 2 45 | 6 4 58 | 6 2 2 | 6 4 |
| | | 9 20 49 | 8 21 22 | 8 23 35 | 8 20 37 | 8 22 |
| | | 10 15 25 | 9 15 59 | 10 18 12 | 9 15 13 | 10 17 |
| | In | 12 10 2 | 11 10 35 | 11 12 48 | 11 9 48 | 11* 12 |
| | | 14 4 39 | 13 5 12 | 13 7 25 | 13 4 23 | 13 6 |
| | the | 16 23 16 | 15 23 49 | 15 2 2 | 15 22 59 | 15 1 |
| | | 18 17 53 | 17 18 26 | 17 20 38 | 16 17 34 | 17 19 |
| | Shadow. | 19* 12 29 | 18 13 2 | 18 15 15 | 18* 12 9 | 18 14 |
| | | 21 7 6 | 20 7 39 | 20 9 51 | 20 6 44 | 20 8 |
| | | 23 1 43 | 22 2 15 | 22 4 28 | 22 1 20 | 22 3 |
| | | 25 20 19 | 24 20 52 | 24 23 4 | 24 19 55 | 24 22 |
| | | 26 14 56 | 25 15 28 | 25 17 41 | 25 14 30 | 25 16 |
| | | 28 9 32 | 27 10 5 | 27* 12 17 | 27 9 5 | 27* 11 |
| | | 30 4 9 | 29 4 41 | 29 6 54 | 29 3 41 | 29 5 |
| | | | 31 23 17 | 31 1 30 | 31 22 16 | 31 0 |
| II. | | 4 5 25 | 2 7 48 | 2 10 13 | 2 6 30 | 2 8 |
| | | 8 19 1 | 6 21 27 | 6 23 51 | 6 20 3 | 6 22 |
| | In | 11 8 38 | 9* 11 5 | 9 13 28 | 9 9 34 | 9* 11 |
| | | 15 22 14 | 13 0 42 | 13 3 6 | 13 23 6 | 13 1 |
| | the | 18* 11 50 | 16 14 19 | 16 16 42 | 16* 12 38 | 16 15 |
| | | 22 1 25 | 20 3 57 | 20 6 20 | 20 2 10 | 20 4 |
| | Shadow. | 25 15 0 | 23 17 34 | 24 19 56 | 23 15 41 | 23 18 |
| | | 29 4 35 | 27 7 11 | 27 9 33 | 27 5 14 | 27 7 |
| | | | 31 20 47 | 31 23 9 | 31 18 45 | 31 21 |
| III. | 3 16 18 | 4 18 48 | 7 6 49 | 7 9 18 | 7 3 52 | 7 6 |
| | 11 21 10 | 11 23 38 | 14* 11 39 | 14 14 6 | 14 8 18 | 14* 10 |
| | 18 2 0 | 18 4 26 | 21 16 28 | 22 18 53 | 21* 12 43 | 21 15 |
| | 25 6 48 | 25 9 12 | 29 21 15 | 29 23 37 | 28 17 9 | 29 19 |

| For correcting the Places of the Fixed Stars. At Mean Midnight, Logarithm of A | B | C | D | Mean Time of Transit of the First Point of Aries. | Mean Equinoctial Time, adding $0^d.293960$. Days. | From Mean Noon of January 1. Day of the Year. | Fraction of the Year. |
|---|---|---|---|---|---|---|---|
| | | | | h m s | | | |
| +0 ·8222 | +1 ·2794 | +0 ·0032 | −0 ·9180 | 7 20 9 ·38 | 253 | 334 | ·914 |
| 0 ·8014 | 1 ·2823 | 0 ·0048 | 0 ·9172 | 7 16 13 ·47 | 254 | 335 | ·917 |
| 0 ·7794 | 1 ·2850 | 0 ·0064 | 0 ·9164 | 7 12 17 ·56 | 255 | 336 | ·920 |
| +0 ·7561 | +1 ·2875 | +0 ·0080 | −0 ·9157 | 7 8 21 ·65 | 256 | 337 | ·923 |
| 0 ·7313 | 1 ·2899 | 0 ·0096 | 0 ·9150 | 7 4 25 ·73 | 257 | 338 | ·925 |
| 0 ·7049 | 1 ·2921 | 0 ·0112 | 0 ·9143 | 7 0 29 ·82 | 258 | 339 | ·928 |
| +0 ·6766 | +1 ·2942 | +0 ·0128 | −0 ·9136 | 6 56 33 ·90 | 259 | 340 | ·931 |
| 0 ·6462 | 1 ·2962 | 0 ·0144 | 0 ·9130 | 6 52 37 ·98 | 260 | 341 | ·934 |
| 0 ·6133 | 1 ·2980 | 0 ·0160 | 0 ·9124 | 6 48 42 ·06 | 261 | 342 | ·936 |
| +0 ·5776 | +1 ·2997 | +0 ·0176 | −0 ·9118 | 6 44 46 ·15 | 262 | 343 | ·939 |
| 0 ·5385 | 1 ·3012 | 0 ·0192 | 0 ·9113 | 6 40 50 ·23 | 263 | 344 | ·942 |
| 0 ·4954 | 1 ·3026 | 0 ·0208 | 0 ·9108 | 6 36 54 ·32 | 264 | 345 | ·945 |
| +0 ·4474 | +1 ·3038 | +0 ·0224 | −0 ·9103 | 6 32 58 ·42 | 265 | 346 | ·947 |
| 0 ·3933 | 1 ·3049 | 0 ·0240 | 0 ·9098 | 6 29 2 ·51 | 266 | 347 | ·950 |
| 0 ·3312 | 1 ·3059 | 0 ·0256 | 0 ·9094 | 6 25 6 ·60 | 267 | 348 | ·953 |
| +0 ·2586 | +1 ·3067 | +0 ·0272 | −0 ·9091 | 6 21 10 ·69 | 268 | 349 | ·956 |
| 0 ·1713 | 1 ·3074 | 0 ·0288 | 0 ·9088 | 6 17 14 ·78 | 269 | 350 | ·958 |
| 0 ·0616 | 1 ·3080 | 0 ·0303 | 0 ·9085 | 6 13 18 ·87 | 270 | 351 | ·961 |
| +9 ·9143 | +1 ·3084 | +0 ·0319 | −0 ·9082 | 6 9 22 ·95 | 271 | 352 | ·964 |
| 9 ·6895 | 1 ·3086 | 0 ·0335 | 0 ·9080 | 6 5 27 ·03 | 272 | 353 | ·966 |
| +9 ·1967 | 1 ·3088 | 0 ·0351 | 0 ·9078 | 6 1 31 ·11 | 273 | 354 | ·969 |
| −9 ·2424 | +1 ·3088 | +0 ·0366 | −0 ·9076 | 5 57 35 ·19 | 274 | 355 | ·972 |
| 9 ·7048 | 1 ·3086 | 0 ·0382 | 0 ·9075 | 5 53 39 ·28 | 275 | 356 | ·975 |
| 9 ·9236 | 1 ·3083 | 0 ·0398 | 0 ·9075 | 5 49 43 ·37 | 276 | 357 | ·977 |
| −0 ·0683 | +1 ·3079 | +0 ·0413 | −0 ·9074 | 5 45 47 ·45 | 277 | 358 | ·980 |
| 0 ·1766 | 1 ·3074 | 0 ·0429 | 0 ·9074 | 5 41 51 ·55 | 278 | 359 | ·983 |
| 0 ·2631 | 1 ·3067 | 0 ·0444 | 0 ·9074 | 5 37 55 ·64 | 279 | 360 | ·986 |
| −0 ·3350 | +1 ·3058 | +0 ·0459 | −0 ·9075 | 5 33 59 ·73 | 280 | 361 | ·988 |
| 0 ·3967 | 1 ·3048 | 0 ·0474 | 0 ·9076 | 5 30 3 ·82 | 281 | 362 | ·991 |
| 0 ·4505 | 1 ·3037 | 0 ·0489 | 0 ·9078 | 5 26 7 ·91 | 282 | 363 | ·994 |
| 0 ·4983 | 1 ·3025 | 0 ·0504 | 0 ·9079 | 5 22 12 ·00 | 283 | 364 | ·997 |
| −0 ·5412 | +1 ·3011 | +0 ·0519 | −0 ·9081 | 5 18 16 ·08 | 284 | 365 | 1 ·000 |

| 1839. | | Apparent Obliquity. | The Sun's Horizontal Parallax. | The Sun's Aberration. | Equation of Equinoxes. In Long. | Equation of Equinoxes. In A.R. (*in time.*) | Me Long o f ascen No |
|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | ″ | ″ | ″ | s | ° |
| Jan. | 1 | 23 27 45 ·58 | 8 ·72 | −20 ·71 | +0 ·94 | +0 ·06 | 358 |
| | 11 | 45 ·67 | 8 ·72 | 20 ·70 | 1 ·12 | 0 ·07 | 358 |
| | 21 | 45 ·92 | 8 ·71 | 20 ·68 | 1 ·61 | 0 ·10 | 357 |
| | 31 | 23 27 46 ·07 | 8 ·70 | 20 ·66 | 2 ·19 | 0 ·13 | 357 |
| Feb. | 10 | 46 ·10 | 8 ·69 | 20 ·62 | 2 ·19 | 0 ·13 | 356 |
| | 20 | 46 ·31 | 8 ·67 | 20 ·58 | 1 ·96 | 0 ·12 | 356 |
| March | 2 | 23 27 46 ·56 | 8 ·65 | 20 ·53 | 1 ·97 | 0 ·12 | 355 |
| | 12 | 46 ·52 | 8 ·63 | 20 ·48 | 1 ·98 | 0 ·12 | 355 |
| | 22 | 46 ·46 | 8 ·60 | 20 ·42 | 1 ·54 | 0 ·09 | 354 |
| April | 1 | 23 27 46 ·51 | 8 ·58 | 20 ·36 | 1 ·05 | 0 ·06 | 354 |
| | 11 | 46 ·44 | 8 ·55 | 20 ·30 | 1 ·13 | 0 ·07 | 353 |
| | 21 | 46 ·18 | 8 ·53 | 20 ·25 | 1 ·13 | 0 ·07 | 353 |
| May | 1 | 23 27 45 ·93 | 8 ·51 | 20 ·19 | 0 ·81 | 0 ·05 | 352 |
| | 11 | 45 ·85 | 8 ·49 | 20 ·15 | 0 ·94 | 0 ·06 | 352 |
| | 21 | 45 ·68 | 8 ·47 | 20 ·11 | 1 ·51 | 0 ·09 | 351 |
| | 31 | 23 27 45 ·35 | 8 ·46 | 20 ·07 | 1 ·91 | 0 ·12 | 350 |
| June | 10 | 45 ·26 | 8 ·45 | 20 ·05 | 2 ·16 | 0 ·13 | 350 |
| | 20 | 45 ·32 | 8 ·44 | 20 ·03 | 2 ·77 | 0 ·17 | 349 |
| | 30 | 23 27 45 ·25 | 8 ·44 | 20 ·03 | 3 ·65 | 0 ·22 | 349 |
| July | 10 | 45 ·21 | 8 ·44 | 20 ·03 | 4 ·06 | 0 ·25 | 348 |
| | 20 | 45 ·38 | 8 ·44 | 20 ·04 | 4 ·22 | 0 ·26 | 348 |
| | 30 | 23 27 45 ·61 | 8 ·45 | 20 ·06 | 4 ·78 | 0 ·29 | 347 |
| Aug. | 9 | 45 ·68 | 8 ·46 | 20 ·09 | 5 ·18 | 0 ·32 | 347 |
| | 19 | 45 ·73 | 8 ·48 | 20 ·13 | 4 ·97 | 0 ·30 | 346 |
| | 29 | 23 27 45 ·96 | 8 ·50 | 20 ·17 | 4 ·77 | 0 ·29 | 346 |
| Sept. | 8 | 46 ·11 | 8 ·52 | 20 ·22 | 4 ·86 | 0 ·30 | 345 |
| | 18 | 45 ·99 | 8 ·54 | 20 ·28 | 4 ·70 | 0 ·29 | 345 |
| | 28 | 23 27 45 ·94 | 8 ·57 | 20 ·33 | 4 ·17 | 0 ·26 | 344 |
| Oct. | 8 | 45 ·98 | 8 ·59 | 20 ·39 | 3 ·86 | 0 ·24 | 344 |
| | 18 | 45 ·81 | 8 ·62 | 20 ·45 | 4 ·03 | 0 ·25 | 343 |
| | 28 | 23 27 45 ·51 | 8 ·64 | 20 ·51 | 3 ·92 | 0 ·24 | 343 |
| Nov. | 7 | 45 ·31 | 8 ·66 | 20 ·56 | 3 ·64 | 0 ·22 | 342 |
| | 17 | 45 ·21 | 8 ·68 | 20 ·61 | 4 ·01 | 0 ·25 | 341 |
| | 27 | 23 27 44 ·96 | 8 ·70 | 20 ·64 | 4 ·59 | 0 ·28 | 341 |
| Dec. | 7 | 44 ·67 | 8 ·71 | 20 ·67 | 4 ·88 | 0 ·30 | 340 |
| | 17 | 44 ·66 | 8 ·72 | 20 ·70 | 5 ·24 | 0 ·32 | 340 |
| | 27 | 23 27 44 ·70 | 8 ·72 | 20 ·71 | 6 ·02 | 0 ·37 | 339 |
| | 37 | 23 27 44 ·60 | 8 ·72 | −20 ·70 | +6 ·80 | +0 ·42 | 339 |

Mean Obliquity, Jan. 1, 1839 = 23° 27′ 36″·98.

Daily
−3

# EPHEMERIS

OF

# THE PLANETS.

# JANUARY, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | R |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 19 6 52·58 | S. 20 25 8·8 | 9·8354990 | 0 24·9 | 88 54 17·8 | N. 4 44 38·6 | 9· |
| 2 | 19 1 22·99 | 20 16 47·6 | ·8306320 | 0 15·5 | 95 9 14·9 | 5 16 35·9 | · |
| 3 | 18 55 38·58 | 20 9 52·5 | ·8276840 | {0 5·9 / 23 56·2} | 101 19 55·7 | 5 44 27·8 | · |
| 4 | 18 49 50·44 | 20 4 24·3 | ·8266976 | 23 46·7 | 107 25 4·5 | 6 7 59·5 | · |
| 5 | 18 44 9·55 | 20 0 23·7 | ·8276360 | 23 37·4 | 113 23 31·9 | 6 27 3·4 | · |
| 6 | 18 38 46·02 | 19 57 51·3 | ·8303913 | 23 28·5 | 119 14 20·6 | 6 41 39·8 | · |
| 7 | 18 33 48·43 | 19 56 47·3 | ·8347964 | 23 20·2 | 124 56 44·8 | 6 51 55·0 | · |
| 8 | 18 29 23·54 | 19 57 11·2 | ·8406435 | 23 12·5 | 130 30 9·9 | 6 58 0·6 | · |
| 9 | 18 25 36·20 | 19 58 58·8 | ·8477045 | 23 5·4 | 135 54 11·6 | 7 0 12·1 | · |
| 10 | 18 22 29·26 | 20 2 7·1 | ·8557465 | 22 59·1 | 141 8 38·0 | 6 58 47·9 | |
| 11 | 18 20 3·99 | 20 6 29·7 | ·8645463 | 22 53·4 | 146 13 24·1 | 6 54 7·7 | |
| 12 | 18 18 20·33 | 20 11 58·9 | ·8739004 | 22 48·4 | 151 8 33·5 | 6 46 32·0 | |
| 13 | 18 17 17·19 | 20 18 24·8 | ·8836282 | 22 44·0 | 155 54 16·4 | 6 36 20·8 | |
| 14 | 18 16 52·74 | 20 25 38·7 | ·8935765 | 22 40·2 | 160 30 47·8 | 6 23 53·9 | |
| 15 | 18 17 4·74 | 20 33 30·1 | ·9036187 | 22 37·0 | 164 58 26·9 | 6 9 29·4 | |
| 16 | 18 17 50·71 | 20 41 48·7 | ·9136501 | 22 34·4 | 169 17 35·3 | 5 53 24·5 | |
| 17 | 18 19 8·01 | 20 50 24·6 | ·9235894 | 22 32·2 | 173 28 37·5 | 5 35 54·7 | |
| 18 | 18 20 54·10 | 20 59 8·1 | ·9333735 | 22 30·4 | 177 31 58·1 | 5 17 14·0 | |
| 19 | 18 23 6·48 | 21 7 50·1 | ·9429542 | 22 29·1 | 181 28 3·3 | 4 57 34·9 | |
| 20 | 18 25 42·78 | 21 16 23·2 | ·9522962 | 22 28·1 | 185 17 18·6 | 4 37 8·5 | |
| 21 | 18 28 40·86 | 21 24 38·7 | ·9613754 | 22 27·4 | 189 0 9·9 | 4 16 4·6 | |
| 22 | 18 31 58·69 | 21 32 30·1 | ·9701754 | 22 27·0 | 192 37 2·8 | 3 54 31·7 | |
| 23 | 18 35 34·42 | 21 39 51·1 | ·9786861 | 22 26·8 | 196 8 21·0 | 3 32 37·1 | |
| 24 | 18 39 26·40 | 21 46 36·0 | ·9869029 | 22 27·0 | 199 34 28·8 | 3 10 27·3 | |
| 25 | 18 43 33·10 | 21 52 40·1 | 9·9948249 | 22 27·5 | 202 55 48·5 | 2 48 8·0 | |
| 26 | 18 47 53·17 | 21 57 58·5 | 0·0024540 | 22 28·1 | 206 12 41·9 | 2 25 43·7 | |
| 27 | 18 52 25·36 | 22 2 27·1 | ·0097957 | 22 28·8 | 209 25 31·1 | 2 3 19·0 | |
| 28 | 18 57 8·59 | 22 6 [illegible] | ·0168546 | 22 29·8 | 212 34 34·7 | 1 40 57·2 | |
| 29 | 19 2 1·85 | 22 [illegible] | [illegible] | 22 30·9 | 215 40 12·3 | 1 18 41·4 | |
| 30 | 19 7 4·26 | 22 [illegible] | [illegible] | [illegible] | 218 42 42·0 | 0 56 34·2 | |
| 31 | 19 12 14·99 | [illegible] | [illegible] | [illegible] | [illegible] 42 21·2 | 0 34 38·3 | |
| 32 | 19 17 33·31 | S [illegible] | | | | | |

# JANUARY, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 19 6 47 ·07 | −13 ·21 | 0 ·34 | S. 20 24 59 ·4 | +22 ·5 | 4 ·7 | 12 ·5 |
| 19 1 19 ·33 | 14 ·03 | 0 ·34 | 20 16 42 ·7 | 18 ·9 | 4 ·8 | 12 ·7 |
| {18 55 37 ·15 / 18 49 51 ·25} | {14 ·41 / 14 ·33} | {0 ·33 / 0 ·33} | {20 9 51 ·0 / 20 4 25 ·1} | {15 ·4 / 11 ·8} | {4 ·8 / 4 ·8} | {12 ·8 / 12 ·8} |
| 18 44 12 ·65 | 13 ·82 | 0 ·33 | 20 0 25 ·5 | 8 ·2 | 4 ·8 | 12 ·8 |
| 18 38 50 ·94 | 12 ·93 | 0 ·33 | 19 57 53 ·1 | 4 ·6 | 4 ·8 | 12 ·7 |
| 18 33 54 ·61 | 11 ·72 | 0 ·33 | 19 56 47 ·8 | + 0 ·9 | 4 ·7 | 12 ·6 |
| 18 29 30 ·39 | 10 ·27 | 0 ·33 | 19 57 9 ·3 | − 2 ·7 | 4 ·7 | 12 ·4 |
| 18 25 43 ·07 | 8 ·66 | 0 ·32 | 19 58 54 ·0 | 6 ·1 | 4 ·6 | 12 ·2 |
| 18 22 35 ·57 | 6 ·95 | 0 ·32 | 20 1 58 ·5 | 9 ·3 | 4 ·5 | 12 ·0 |
| 18 20 9 ·30 | 5 ·23 | 0 ·31 | 20 6 17 ·2 | 12 ·2 | 4 ·4 | 11 ·7 |
| 18 18 24 ·23 | 3 ·53 | 0 ·31 | 20 11 42 ·3 | 14 ·8 | 4 ·3 | 11 ·5 |
| 18 17 19 ·39 | 1 ·89 | 0 ·30 | 20 18 4 ·4 | 17 ·0 | 4 ·2 | 11 ·2 |
| 18 16 53 ·08 | − 0 ·32 | 0 ·29 | 20 25 14 ·8 | 18 ·8 | 4 ·1 | 11 ·0 |
| 18 17 3 ·15 | + 1 ·14 | 0 ·29 | 20 33 3 ·2 | 20 ·2 | 4 ·0 | 10 ·7 |
| 18 17 47 ·17 | 2 ·51 | 0 ·28 | 20 41 19 ·4 | 21 ·1 | 4 ·0 | 10 ·5 |
| 18 19 2 ·56 | 3 ·76 | 0 ·28 | 20 49 53 ·5 | 21 ·7 | 3 ·9 | 10 ·2 |
| 18 20 46 ·84 | 4 ·90 | 0 ·27 | 20 58 36 ·1 | 21 ·8 | 3 ·8 | 10 ·0 |
| 18 22 57 ·51 | 5 ·96 | 0 ·26 | 21 7 17 ·8 | 21 ·6 | 3 ·7 | 9 ·8 |
| 18 25 32 ·23 | 6 ·92 | 0 ·26 | 21 15 51 ·2 | 21 ·1 | 3 ·6 | 9 ·6 |
| 18 28 28 ·87 | 7 ·79 | 0 ·25 | 21 24 7 ·7 | 20 ·2 | 3 ·5 | 9 ·4 |
| 18 31 45 ·40 | 8 ·58 | 0 ·25 | 21 32 0 ·6 | 19 ·1 | 3 ·5 | 9 ·2 |
| 18 35 19 ·97 | 9 ·29 | 0 ·24 | 21 39 23 ·6 | 17 ·8 | 3 ·4 | 9 ·0 |
| 18 39 10 ·94 | 9 ·94 | 0 ·24 | 21 46 10 ·9 | 16 ·2 | 3 ·3 | 8 ·8 |
| 18 43 16 ·75 | 10 ·53 | 0 ·23 | 21 52 17 ·9 | 14 ·4 | 3 ·3 | 8 ·7 |
| 18 47 36 ·07 | 11 ·07 | 0 ·23 | 21 57 39 ·4 | 12 ·4 | 3 ·2 | 8 ·5 |
| 18 52 7 ·63 | 11 ·55 | 0 ·22 | 22 2 11 ·4 | 10 ·3 | 3 ·2 | 8 ·4 |
| 18 56 50 ·35 | 12 ·00 | 0 ·22 | 22 5 50 ·6 | 8 ·0 | 3 ·1 | 8 ·3 |
| 19 1 43 ·19 | 12 ·40 | 0 ·22 | 22 8 33 ·2 | 5 ·6 | 3 ·1 | 8 ·1 |
| 19 6 45 ·29 | 12 ·77 | 0 ·21 | 22 10 16 ·8 | 3 ·0 | 3 ·0 | 8 ·0 |
| 19 11 55 ·80 | 13 ·10 | 0 ·21 | 22 10 58 ·5 | − 0 ·4 | 3 ·0 | 7 ·9 |
| 19 17 13 ·98 | 13 ·41 | 0 ·21 | 22 10 35 ·9 | + 2 ·3 | 2 ·9 | 7 ·8 |
| 19 22 39 ·17 | +13 ·69 | 0 ·21 | S. 22 9 7 ·0 | + 5 ·1 | 2 ·9 | 7 ·7 |

# FEBRUARY, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | |
|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ |
| 1 | 19 17 33·31 | S. 22 10 32·4 | 0·0424148 | 22 34·9 | 224 39 26·6 | N. 0 12 55·2 |
| 2 | 19 22 58·56 | 22 8 59·7 | ·0481767 | 22 36·5 | 227 34 13·7 | S. 0 8 32·9 |
| 3 | 19 28 30·15 | 22 6 18·8 | ·0537045 | 22 38·2 | 230 26 58·9 | 0 29 44·9 |
| 4 | 19 34 7·56 | 22 2 28·3 | ·0590059 | 22 39·9 | 233 17 56·7 | 0 50 38·9 |
| 5 | 19 39 50·27 | 21 57 26·8 | ·0640887 | 22 41·8 | 236 7 20·6 | 1 11 13·9 |
| 6 | 19 45 37·85 | 21 51 12·8 | ·0689605 | 22 43·7 | 238 55 25·0 | 1 31 28·8 |
| 7 | 19 51 29·89 | 21 43 45·2 | ·0736288 | 22 45·7 | 241 42 23·2 | 1 51 22·3 |
| 8 | 19 57 26·01 | 21 35 3·1 | ·0781002 | 22 47·8 | 244 28 28·1 | 2 10 53·3 |
| 9 | 20 3 25·92 | 21 25 5·6 | ·0823811 | 22 49·9 | 247 13 52·8 | 2 30 1·0 |
| 10 | 20 9 29·27 | 21 13 51·7 | ·0864778 | 22 52·0 | 249 58 49·9 | 2 48 44·2 |
| 11 | 20 15 35·81 | 21 1 21·2 | ·0903954 | 22 54·3 | 252 43 31·4 | 3 7 1·8 |
| 12 | 20 21 45·27 | 20 47 32·9 | ·0941397 | 22 56·5 | 255 28 10·1 | 3 24 52·6 |
| 13 | 20 27 57·44 | 20 32 26·6 | ·0977148 | 22 58·8 | 258 12 57·5 | 3 42 16·0 |
| 14 | 20 34 12·09 | 20 16 1·7 | ·1011262 | 23 1·2 | 260 58 6·2 | 3 59 10·1 |
| 15 | 20 40 29·06 | 19 58 17·8 | ·1043766 | 23 3·5 | 263 43 48·3 | 4 15 33·8 |
| 16 | 20 46 48·21 | 19 39 14·4 | ·1074698 | 23 6·0 | 266 30 16·3 | 4 31 25·7 |
| 17 | 20 53 9·38 | 19 18 51·1 | ·1104082 | 23 8·4 | 269 17 42·6 | 4 46 43·9 |
| 18 | 20 59 32·43 | 18 57 7·9 | ·1131961 | 23 10·9 | 272 6 20·3 | 5 1 27·1 |
| 19 | 21 5 57·28 | 18 34 4·4 | ·1158337 | 23 13·4 | 274 56 21·8 | 5 15 33·1 |
| 20 | 21 12 23·83 | 18 9 40·4 | ·1183229 | 23 15·9 | 277 48 0·3 | 5 28 59·8 |
| 21 | 21 18 52·02 | 17 43 55·6 | ·1206644 | 23 18·5 | 280 41 29·3 | 5 41 44·9 |
| 22 | 21 25 21·74 | 17 16 50·1 | ·1228602 | 23 21·0 | 283 37 3·2 | 5 53 45·8 |
| 23 | 21 31 53·00 | 16 48 23·6 | ·1249087 | 23 23·7 | 286 34 56·0 | 6 4 59·7 |
| 24 | 21 38 25·75 | 16 18 36·2 | ·1268091 | 23 26·3 | 289 35 22·7 | 6 15 23·4 |
| 25 | 21 44 59·97 | 15 47 27·8 | ·1285606 | 23 28·9 | 292 38 38·7 | 6 24 53·5 |
| 26 | 21 51 35·65 | 15 14 58·1 | ·1301611 | 23 31·6 | 295 44 59·7 | 6 33 26·0 |
| 27 | 21 58 12·77 | 14 41 7·6 | ·1316071 | 23 34·3 | 298 54 42·3 | 6 40 57·0 |
| 28 | 22 4 51·39 | 14 5 56·1 | ·1328958 | 23 37·1 | 302 8 4·0 | 6 47 21·8 |
| 29 | 22 11 31·51 | S. 13 29 23·8 | 0·1340227 | 23 39·8 | | |

# FEBRUARY, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 19 22 39 ·17 | +13 ·69 | 0 ·21 | S. 22 9 7 ·0 | + 5 ·1 | 2 ·9 | 7 ·7 |
| 19 28 10 ·76 | 13 ·94 | 0 ·21 | 22 6 29 ·9 | 8 ·0 | 2 ·9 | 7 ·6 |
| 19 33 48 ·24 | 14 ·18 | 0 ·20 | 22 2 43 ·2 | 10 ·9 | 2 ·8 | 7 ·5 |
| 19 39 31 ·09 | 14 ·39 | 0 ·20 | 21 57 45 ·5 | 13 ·9 | 2 ·8 | 7 ·4 |
| 19 45 18 ·85 | 14 ·59 | 0 ·20 | 21 51 35 ·0 | 17 ·0 | 2 ·8 | 7 ·3 |
| 19 51 11 ·14 | 14 ·77 | 0 ·19 | 21 44 10 ·8 | 20 ·1 | 2 ·7 | 7 ·3 |
| 19 57 7 ·55 | 14 ·93 | 0 ·19 | 21 35 31 ·9 | 23 ·2 | 2 ·7 | 7 ·2 |
| 20 3 7 ·78 | 15 ·08 | 0 ·19 | 21 25 37 ·4 | 26 ·4 | 2 ·7 | 7 ·1 |
| 20 9 11 ·49 | 15 ·22 | 0 ·18 | 21 14 26 ·2 | 29 ·6 | 2 ·6 | 7 ·0 |
| 20 15 18 ·44 | 15 ·35 | 0 ·18 | 21 1 58 ·3 | 32 ·8 | 2 ·6 | 7 ·0 |
| 20 21 28 ·33 | 15 ·47 | 0 ·18 | 20 48 12 ·3 | 36 ·0 | 2 ·6 | 6 ·9 |
| 20 27 40 ·98 | 15 ·58 | 0 ·18 | 20 33 8 ·2 | 39 ·3 | 2 ·6 | 6 ·9 |
| 20 33 56 ·12 | 15 ·68 | 0 ·18 | 20 16 45 ·1 | 42 ·6 | 2 ·6 | 6 ·8 |
| 20 40 13 ·62 | 15 ·78 | 0 ·18 | 19 59 2 ·9 | 45 ·9 | 2 ·6 | 6 ·8 |
| 20 46 33 ·30 | 15 ·87 | 0 ·18 | 19 40 0 ·7 | 49 ·3 | 2 ·5 | 6 ·7 |
| 20 52 55 ·04 | 15 ·95 | 0 ·18 | 19 19 38 ·3 | 52 ·6 | 2 ·5 | 6 ·7 |
| 20 59 18 ·67 | 16 ·03 | 0 ·18 | 18 57 56 ·0 | 55 ·9 | 2 ·5 | 6 ·6 |
| 21 5 44 ·12 | 16 ·10 | 0 ·18 | 18 34 52 ·9 | 59 ·3 | 2 ·5 | 6 ·6 |
| 21 12 11 ·29 | 16 ·17 | 0 ·18 | 18 10 29 ·1 | 62 ·7 | 2 ·5 | 6 ·5 |
| 21 18 40 ·11 | 16 ·23 | 0 ·18 | 17 44 44 ·1 | 66 ·1 | 2 ·5 | 6 ·5 |
| 21 25 10 ·48 | 16 ·30 | 0 ·17 | 17 17 38 ·1 | 69 ·4 | 2 ·4 | 6 ·4 |
| 21 31 42 ·40 | 16 ·36 | 0 ·17 | 16 49 10 ·9 | 72 ·8 | 2 ·4 | 6 ·4 |
| 21 38 15 ·82 | 16 ·42 | 0 ·17 | 16 19 22 ·3 | 76 ·2 | 2 ·4 | 6 ·3 |
| 21 44 50 ·73 | 16 ·48 | 0 ·17 | 15 48 12 ·5 | 79 ·6 | 2 ·4 | 6 ·3 |
| 21 51 27 ·10 | 16 ·55 | 0 ·17 | 15 15 41 ·1 | 83 ·0 | 2 ·4 | 6 ·3 |
| 21 58 4 ·93 | 16 ·61 | 0 ·17 | 14 41 48 ·4 | 86 ·4 | 2 ·4 | 6 ·3 |
| 22 4 44 ·27 | 16 ·67 | 0 ·17 | 14 6 34 ·4 | 89 ·8 | 2 ·4 | 6 ·3 |
| 22 11 25 ·13 | 16 ·73 | 0 ·17 | 13 29 59 ·3 | 93 ·1 | 2 ·4 | 6 ·3 |
| 22 18 7 ·52 | +16 ·80 | 0 ·17 | S. 12 52 3 ·5 | +96 ·5 | 2 ·4 | 6 ·3 |

# MARCH, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | R |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 22 11 31·51 | S. 13 29 23·8 | 0·1340227 | 23 39·8 | 305 25 22·7 | S. 6 52 35·3 | 9· |
| 2 | 22 18 13·16 | 12 51 31·1 | ·1349822 | 23 42·6 | 308 46 57·0 | 6 56 32·2 | · |
| 3 | 22 24 56·40 | 12 12 18·1 | ·1357690 | 23 45·4 | 312 13 6·5 | 6 59 6·3 | · |
| 4 | 22 31 41·24 | 11 31 45·4 | ·1363750 | 23 48·2 | 315 44 10·8 | 7 0 11·4 | · |
| 5 | 22 38 27·75 | 10 49 53·5 | ·1367922 | 23 51·1 | 319 20 31·1 | 6 59 40·5 | · |
| 6 | 22 45 15·98 | 10 6 43·1 | ·1370119 | 23 54·0 | 323 2 28·4 | 6 57 26·2 | · |
| 7 | 22 52 5·96 | 9 22 15·3 | ·1370231 | 23 56·9 | 326 50 24·8 | 6 53 20·7 | · |
| 8 | 22 58 57·76 | 8 36 31·0 | ·1368147 | 23 59·9 | 330 44 42·8 | 6 47 15·7 | · |
| 9 | 23 5 51·38 | 7 49 31·8 | ·1363721 | * * | 334 45 44·6 | 6 39 2·7 | · |
| 10 | 23 12 46·86 | 7 1 19·5 | ·1356826 | 0 2·9 | 338 53 52·8 | 6 28 33·1 | · |
| 11 | 23 19 44·20 | 6 11 56·0 | ·1347297 | 0 5·9 | 343 9 29·5 | 6 15 38·2 | · |
| 12 | 23 26 43·38 | 5 21 24·1 | ·1334958 | 0 8·9 | 347 32 56·2 | 6 0 9·4 | · |
| 13 | 23 33 44·33 | 4 29 46·7 | ·1319621 | 0 12·0 | 352 4 33·1 | 5 41 59·0 | · |
| 14 | 23 40 46·99 | 3 37 7·6 | ·1301093 | 0 15·1 | 356 44 38·3 | 5 21 0·2 | · |
| 15 | 23 47 51·20 | 2 43 31·2 | ·1279151 | 0 18·3 | 1 33 27·9 | 4 57 7·5 | · |
| 16 | 23 54 56·77 | 1 49 2·4 | ·1253579 | 0 21·4 | 6 31 14·3 | 4 30 17·5 | · |
| 17 | 0 2 3·45 | S. 0 53 47·1 | ·1224131 | 0 24·6 | 11 38 5·9 | 4 0 29·6 | · |
| 18 | 0 9 10·90 | N. 0 2 7·4 | ·1190573 | 0 27·8 | 16 54 5·5 | 3 27 46·5 | · |
| 19 | 0 16 18·69 | 0 58 33·5 | ·1152664 | 0 31·0 | 22 19 9·0 | 2 52 15·2 | · |
| 20 | 0 23 26·31 | 1 55 22·2 | ·1110167 | 0 34·2 | 27 53 5·5 | 2 14 7·5 | · |
| 21 | 0 30 33·10 | 2 52 23·2 | ·1062854 | 0 37·4 | 33 35 34·8 | 1 33 40·6 | · |
| 22 | 0 37 38·34 | 3 49 25·7 | ·1010518 | 0 40·5 | 39 26 7·9 | 0 51 17·6 | · |
| 23 | 0 44 41·13 | 4 46 17·2 | ·0952984 | 0 43·6 | 45 24 3·4 | S. 0 7 27·0 | · |
| 24 | 0 51 40·51 | 5 42 44·8 | ·0890091 | 0 46·7 | 51 28 32·8 | N. 0 37 16·4 | · |
| 25 | 0 58 35·41 | 6 38 34·8 | ·0821747 | 0 49·6 | 57 38 34·2 | 1 22 14·2 | · |
| 26 | 1 5 24·60 | 7 33 32·7 | ·0747894 | 0 52·5 | 63 52 56·5 | 2 6 43·7 | · |
| 27 | 1 12 6·85 | 8 27 24·1 | ·0668537 | 0 55·3 | 70 10 21·1 | 2 50 1·3 | · |
| 28 | 1 18 40·80 | 9 19 54·4 | ·0583737 | 0 57·9 | 76 29 21·9 | 3 31 23·3 | · |
| 29 | 1 25 5·09 | 10 10 49·5 | ·0493620 | 1 0·4 | 82 48 29·2 | 4 10 9·0 | · |
| 30 | 1 31 18·35 | 10 59 55·7 | ·0398379 | 1 2·6 | 89 6 12·5 | 4 45 41·9 | · |
| 31 | 1 37 19·19 | 11 47 0·6 | ·0 | | [illegible] 21 2·9 | 5 17 31·9 | · |
| 32 | 1 43 6·26 | N. 12 31 52·0 | 0·0 | | | 45 15·9 | 9 |

# MARCH, 1839.

At Transit over the Meridian of Greenwich.

| Month. | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|---|
| | h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 1 | 22 18 7 ·52 | +16 ·80 | 0 ·17 | S. 12 52 3 ·5 | + 96 ·5 | 2 ·4 | 6 ·3 |
| 2 | 22 24 51 ·52 | 16 ·87 | 0 ·16 | 12 12 47 ·0 | 99 ·9 | 2 ·4 | 6 ·3 |
| 3 | 22 31 37 ·13 | 16 ·94 | 0 ·16 | 11 32 10 ·5 | 103 ·2 | 2 ·4 | 6 ·3 |
| 4 | 22 38 24 ·42 | 17 ·01 | 0 ·16 | 10 50 14 ·3 | 106 ·5 | 2 ·4 | 6 ·3 |
| 5 | 22 45 13 ·45 | 17 ·08 | 0 ·16 | 10 6 59 ·3 | 109 ·8 | 2 ·4 | 6 ·3 |
| 6 | 22 52 4 ·25 | 17 ·15 | 0 ·16 | 9 22 26 ·5 | 113 ·0 | 2 ·4 | 6 ·3 |
| 7 | 22 58 56 ·88 | 17 ·23 | 0 ·16 | 8 36 36 ·8 | 116 ·1 | 2 ·4 | 6 ·3 |
| 8 | 23 5 51 ·35 | 17 ·31 | 0 ·16 | 7 49 32 ·0 | 119 ·2 | 2 ·4 | 6 ·3 |
| 9 | * * * | * | * | * * * | * | * | * |
| 10 | 23 12 47 ·69 | 17 ·39 | 0 ·16 | 7 1 13 ·7 | 122 ·3 | 2 ·4 | 6 ·3 |
| 11 | 23 19 45 ·92 | 17 ·47 | 0 ·16 | 6 11 43 ·8 | 125 ·2 | 2 ·4 | 6 ·3 |
| 12 | 23 26 45 ·99 | 17 ·54 | 0 ·16 | 5 21 5 ·0 | 128 ·0 | 2 ·4 | 6 ·3 |
| 13 | 23 33 47 ·85 | 17 ·61 | 0 ·16 | 4 29 20 ·5 | 130 ·7 | 2 ·4 | 6 ·3 |
| 14 | 23 40 51 ·44 | 17 ·68 | 0 ·16 | 3 36 34 ·0 | 133 ·2 | 2 ·4 | 6 ·4 |
| 15 | 23 47 56 ·59 | 17 ·74 | 0 ·16 | 2 42 49 ·9 | 135 ·5 | 2 ·4 | 6 ·4 |
| 16 | 23 55 3 ·11 | 17 ·80 | 0 ·16 | 1 48 13 ·4 | 137 ·5 | 2 ·4 | 6 ·4 |
| 17 | 0 2 10 ·75 | 17 ·84 | 0 ·17 | S. 0 52 50 ·1 | 139 ·3 | 2 ·5 | 6 ·5 |
| 18 | 0 9 19 ·16 | 17 ·86 | 0 ·17 | N. 0 3 12 ·5 | 140 ·8 | 2 ·5 | 6 ·5 |
| 19 | 0 16 27 ·89 | 17 ·86 | 0 ·17 | 0 59 46 ·7 | 142 ·0 | 2 ·5 | 6 ·6 |
| 20 | 0 23 36 ·45 | 17 ·84 | 0 ·17 | 1 56 43 ·4 | 142 ·7 | 2 ·5 | 6 ·6 |
| 21 | 0 30 44 ·16 | 17 ·79 | 0 ·17 | 2 53 52 ·0 | 143 ·0 | 2 ·5 | 6 ·7 |
| 22 | 0 37 50 ·27 | 17 ·71 | 0 ·17 | 3 51 1 ·9 | 142 ·8 | 2 ·6 | 6 ·8 |
| 23 | 0 44 53 ·88 | 17 ·59 | 0 ·17 | 4 48 0 ·2 | 142 ·0 | 2 ·6 | 6 ·9 |
| 24 | 0 51 54 ·04 | 17 ·42 | 0 ·18 | 5 44 34 ·1 | 140 ·7 | 2 ·6 | 7 ·0 |
| 25 | 0 58 49 ·62 | 17 ·20 | 0 ·18 | 6 40 29 ·5 | 138 ·8 | 2 ·7 | 7 ·1 |
| 26 | 1 5 39 ·40 | 16 ·94 | 0 ·18 | 7 35 31 ·9 | 136 ·3 | 2 ·7 | 7 ·2 |
| 27 | 1 12 22 ·14 | 16 ·61 | 0 ·18 | 8 29 26 ·7 | 133 ·2 | 2 ·8 | 7 ·4 |
| 28 | 1 18 56 ·45 | 16 ·24 | 0 ·19 | 9 21 59 ·3 | 129 ·4 | 2 ·8 | 7 ·5 |
| 29 | 1 25 20 ·38 | 15 ·80 | 0 ·19 | 10 12 55 ·3 | 125 ·1 | 2 ·9 | 7 ·7 |
| 30 | 1 31 34 ·32 | 15 ·30 | 0 ·19 | 11 2 1 ·2 | 120 ·3 | 2 ·9 | 7 ·8 |
| 31 | 1 37 35 ·19 | 14 ·75 | 0 ·20 | 11 49 4 ·5 | 114 ·9 | 3 ·0 | 8 ·0 |
| | 1 43 25 | +14 ·14 | 0 ·21 | N. 12 33 53 ·1 | +109 ·1 | 3 ·1 | 8 ·2 |

# APRIL, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. V |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 1 43 6·26 | N.12 31 52·0 | 0·0193549 | 1 6·5 | 101 31 35·5 | N.5 45 15·9 | 9·4958 |
| 2 | 1 48 38·28 | 13 14 19·9 | 0·0084619 | 1 8·1 | 107 36 32·4 | 6 8 39·3 | ·4998 |
| 3 | 1 53 54·00 | 13 54 14·7 | 9·9971849 | 1 9·4 | 113 34 46·8 | 6 27 34·9 | ·5044 |
| 4 | 1 58 52·31 | 14 31 28·5 | ·9855668 | 1 10·4 | 119 25 21·1 | 6 42 3·0 | ·5097 |
| 5 | 2 3 32·10 | 15 5 54·3 | ·9736540 | 1 11·1 | 125 7 29·0 | 6 52 10·2 | ·5154 |
| 6 | 2 7 52·41 | 15 37 26·2 | ·9614936 | 1 11·5 | 130 40 36·9 | 6 58 8·2 | ·5215 |
| 7 | 2 11 52·36 | 16 5 59·4 | ·9491360 | 1 11·6 | 136 4 21·7 | 7 0 12·7 | ·5279 |
| 8 | 2 15 31·13 | 16 31 29·6 | ·9366337 | 1 11·3 | 141 18 30·2 | 6 58 42·1 | ·5340 |
| 9 | 2 18 48·09 | 16 53 53·5 | ·9240400 | 1 10·6 | 146 22 58·3 | 6 53 56·0 | ·5414 |
| 10 | 2 21 42·61 | 17 13 8·2 | ·9114115 | 1 9·5 | 151 17 50·0 | 6 46 15·1 | ·5483 |
| 11 | 2 24 14·21 | 17 29 11·1 | ·8988053 | 1 8·1 | 156 3 15·2 | 6 35 59·4 | ·5553 |
| 12 | 2 26 22·62 | 17 42 0·7 | ·8862822 | 1 6·3 | 160 39 29·7 | 6 23 28·4 | ·5622 |
| 13 | 2 28 7·58 | 17 51 35·3 | ·8739024 | 1 4·1 | 165 6 52·6 | 6 9 0·6 | ·5699 |
| 14 | 2 29 29·10 | 17 57 54·1 | ·8617319 | 1 1·5 | 169 25 45·5 | 5 52 52·7 | ·5775 |
| 15 | 2 30 27·28 | 18 0 57·0 | ·8498358 | 0 58·5 | 173 36 32·9 | 5 35 20·5 | ·5822 |
| 16 | 2 31 2·44 | 18 0 44·5 | ·8382825 | 0 55·1 | 177 39 39·7 | 5 16 37·7 | ·5888 |
| 17 | 2 31 15·16 | 17 57 18·4 | ·8271417 | 0 51·4 | 181 35 31·9 | 4 56 57·0 | ·5955 |
| 18 | 2 31 6·17 | 17 50 41·2 | ·8164859 | 0 47·3 | 185 24 35·1 | 4 36 29·2 | ·6010 |
| 19 | 2 30 36·54 | 17 40 57·8 | ·8063840 | 0 42·9 | 189 7 15·2 | 4 15 24·3 | ·6066 |
| 20 | 2 29 47·52 | 17 28 13·9 | ·7969084 | 0 38·1 | 192 43 57·4 | 3 53 50·5 | ·6122 |
| 21 | 2 28 40·67 | 17 12 38·1 | ·7881273 | 0 33·1 | 196 15 5·6 | 3 31 55·3 | ·6177 |
| 22 | 2 27 17·79 | 16 54 20·6 | ·7801049 | 0 27·8 | 199 41 4·1 | 3 9 45·1 | ·6222 |
| 23 | 2 25 40·92 | 16 33 34·4 | ·7729018 | 0 22·2 | 203 2 15·0 | 2 47 25·5 | ·6277 |
| 24 | 2 23 52·31 | 16 10 34·9 | ·7665712 | 0 16·4 | 206 19 1·2 | 2 25 1·3 | ·6322 |
| 25 | 2 21 54·39 | 15 45 39·8 | ·7611571 | 0 10·6 | 209 31 42·2 | 2 2 36·5 | ·6366 |
| 26 | 2 19 49·67 | 15 19 8·8 | ·7566943 | {0 4·6 / 23 56·5} | 212 40 38·7 | 1 40 14·8 | ·6406 |
| 27 | 2 17 40·77 | 14 51 23·7 | ·7532072 | 23 52·5 | 215 46 10·1 | 1 17 59·4 | ·6444 |
| 28 | 2 15 30·33 | 14 22 47·4 | ·7507064 | 23 46·4 | 218 48 33·8 | 0 55 [illegible] | [illegible] |
| 29 | 2 13 20·90 | 13 53 43·6 | ·7491935 | 23 40·4 | 221 48 7·8 | 0 33 | |
| 30 | 2 11 14·94 | 13 24 36·4 | ·7486546 | 23 34·4 | 224 45 8·5 | N.0 [illegible] | |
| 31 | 2 9 14·75 | N.12 55 49·0 | 9·7490671 | 23 28·6 | 227 39 52·5 | S.0 | |

# APRIL, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 1 43 21 ·95 | +14 ·14 | 0 ·21 | N.12 33 53 ·1 | +109 ·1 | 3 ·1 | 8 ·2 |
| 1 48 53 ·60 | 13 ·48 | 0 ·22 | 13 16 16 ·7 | 102 ·8 | 3 ·2 | 8 ·4 |
| 1 54 8 ·79 | 12 ·78 | 0 ·22 | 13 56 6 ·1 | 96 ·2 | 3 ·2 | 8 ·6 |
| 1 59 6 ·44 | 12 ·02 | 0 ·23 | 14 33 13 ·5 | 89 ·3 | 3 ·4 | 8 ·9 |
| 2 3 45 ·42 | 11 ·22 | 0 ·23 | 15 7 31 ·9 | 82 ·2 | 3 ·4 | 9 ·1 |
| 2 8 4 ·81 | 10 ·39 | 0 ·24 | 15 38 55 ·6 | 74 ·8 | 3 ·5 | 9 ·4 |
| 2 12 3 ·73 | 9 ·52 | 0 ·26 | 16 7 19 ·9 | 67 ·2 | 3 ·7 | 9 ·7 |
| 2 15 41 ·40 | 8 ·62 | 0 ·26 | 16 32 40 ·5 | 59 ·5 | 3 ·7 | 9 ·9 |
| 2 18 57 ·17 | 7 ·69 | 0 ·27 | 16 54 54 ·5 | 51 ·7 | 3 ·9 | 10 ·2 |
| 2 21 50 ·46 | 6 ·75 | 0 ·28 | 17 13 59 ·2 | 43 ·7 | 4 ·0 | 10 ·5 |
| 2 24 20 ·81 | 5 ·78 | 0 ·29 | 17 29 51 ·9 | 35 ·7 | 4 ·1 | 10 ·8 |
| 2 26 27 ·97 | 4 ·81 | 0 ·29 | 17 42 31 ·4 | 27 ·6 | 4 ·2 | 11 ·2 |
| 2 28 11 ·71 | 3 ·84 | 0 ·30 | 17 51 56 ·4 | 19 ·5 | 4 ·3 | 11 ·5 |
| 2 29 32 ·06 | 2 ·86 | 0 ·32 | 17 58 5 ·9 | 11 ·3 | 4 ·5 | 11 ·8 |
| 2 30 29 ·16 | 1 ·90 | 0 ·32 | 18 1 0 ·3 | + 3 ·2 | 4 ·6 | 12 ·1 |
| 2 31 3 ·34 | 0 ·95 | 0 ·33 | 18 0 40 ·1 | — 4 ·9 | 4 ·7 | 12 ·5 |
| 2 31 15 ·21 | + 0 ·04 | 0 ·33 | 17 57 7 ·4 | 12 ·8 | 4 ·8 | 12 ·8 |
| 2 31 5 ·52 | — 0 ·84 | 0 ·34 | 17 50 24 ·9 | 20 ·7 | 4 ·9 | 13 ·1 |
| 2 30 35 ·35 | 1 ·65 | 0 ·36 | 17 40 37 ·7 | 28 ·3 | 5 ·1 | 13 ·4 |
| 2 29 45 ·97 | 2 ·44 | 0 ·36 | 17 27 51 ·3 | 35 ·5 | 5 ·2 | 13 ·7 |
| 2 28 38 ·94 | 3 ·14 | 0 ·37 | 17 12 14 ·6 | 42 ·4 | 5 ·3 | 14 ·0 |
| 2 27 16 ·05 | 3 ·76 | 0 ·37 | 16 53 58 ·0 | 48 ·9 | 5 ·4 | 14 ·3 |
| 2 25 39 ·32 | 4 ·29 | 0 ·38 | 16 33 14 ·1 | 54 ·7 | 5 ·5 | 14 ·5 |
| 2 23 51 ·00 | 4 ·72 | 0 ·38 | 16 10 18 ·4 | 59 ·8 | 5 ·5 | 14 ·7 |
| 2 21 53 ·49 | 5 ·05 | 0 ·38 | 15 45 28 ·4 | 64 ·2 | 5 ·6 | 14 ·9 |
| {2 19 49 ·37 / 2 17 46 ·20} | {5 ·20 / 5 ·40} | {0 ·39 / 0 ·39} | {15 19 8 ·6 / 14 51 25 ·5} | {67 ·7 / 70 ·3} | {5 ·7 / 5 ·7} | {15 ·0 / 15 ·1} |
| 2 15 31 ·01 | 5 ·41 | 0 ·39 | 14 22 56 ·5 | 71 ·9 | 5 ·7 | 15 ·2 |
| 12 | 5 ·32 | 0 ·40 | 13 54 0 ·2 | 72 ·6 | 5 ·8 | 15 ·3 |
| | 5 ·13 | 0 ·40 | 13 25 0 ·2 | 72 ·3 | 5 ·8 | 15 ·3 |
| | 4 ·84 | 0 ·40 | 12 56 19 ·4 | 71 ·0 | 5 ·8 | 15 ·3 |
| | 4 ·48 | 0 ·39 | N.12 28 20 ·5 | — 68 ·8 | 5 ·7 | 15 ·2 |

# MAY, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. of Rad. Vec |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | Noon |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 2 9 14·75 | N.12 55 49·0 | 9·7490671 | 23 28·6 | 227 39 52·5 | S.0 9 13·5 | 9·6567 |
| 2 | 2 7 22·46 | 12 27 44·4 | ·7503974 | 23 23·0 | 230 32 34·0 | 0 30 24·8 | ·6591 |
| 3 | 2 5 39·95 | 12 0 43·4 | ·7526028 | 23 17·6 | 233 23 28·3 | 0 51 18·4 | ·6612 |
| 4 | 2 4 8·84 | 11 35 4·9 | ·7556334 | 23 12·3 | 236 12 49·6 | 1 11 52·7 | ·6631 |
| 5 | 2 2 50·50 | 11 11 5·7 | ·7594341 | 23 7·3 | 239 0 51·8 | 1 32 6·9 | ·664 |
| 6 | 2 1 46·09 | 10 49 0·4 | ·7639461 | 23 2·5 | 241 47 47·9 | 1 51 59·5 | ·666 |
| 7 | 2 0 56·46 | 10 29 0·3 | ·7691088 | 22 58·0 | 244 33 51·8 | 2 11 30·0 | ·667 |
| 8 | 2 0 22·28 | 10 11 15·2 | ·7748600 | 22 53·8 | 247 19 15·1 | 2 30 36·9 | ·668 |
| 9 | 2 0 3·97 | 9 55 51·8 | ·7811405 | 22 49·8 | 250 4 11·2 | 2 49 19·3 | ·668 |
| 10 | 2 0 1·86 | 9 42 55·1 | ·7878898 | 22 46·1 | 252 48 52·0 | 3 7 36·1 | ·668 |
| 11 | 2 0 15·99 | 9 32 27·8 | ·7950536 | 22 42·7 | 255 33 30·4 | 3 25 26·1 | ·669 |
| 12 | 2 0 46·39 | 9 24 30·9 | ·8025786 | 22 39·5 | 258 18 18·0 | 3 42 48·5 | ·668 |
| 13 | 2 1 32·92 | 9 19 4·3 | ·8104165 | 22 36·6 | 261 3 27·5 | 3 59 41·7 | ·668 |
| 14 | 2 2 35·35 | 9 16 6·1 | ·8185215 | 22 33·9 | 263 49 11·4 | 4 16 4·4 | ·667 |
| 15 | 2 3 53·45 | 9 15 34·0 | ·8268522 | 22 31·5 | 266 35 41·0 | 4 31 55·1 | ·666 |
| 16 | 2 5 26·86 | 9 17 24·2 | ·8353715 | 22 29·4 | 269 23 9·6 | 4 47 12·3 | ·665 |
| 17 | 2 7 15·25 | 9 21 32·6 | ·8440455 | 22 27·5 | 272 11 49·5 | 5 1 54·3 | ·663 |
| 18 | 2 9 18·28 | 9 27 54·8 | ·8528438 | 22 25·8 | 275 1 53·6 | 5 15 59·0 | ·662 |
| 19 | 2 11 35·58 | 9 36 25·5 | ·8617397 | 22 24·4 | 277 53 35·5 | 5 29 24·5 | ·660 |
| 20 | 2 14 6·79 | 9 46 59·6 | ·8707092 | 22 23·2 | 280 47 8·6 | 5 42 8·3 | ·657 |
| 21 | 2 16 51·60 | 9 59 31·8 | ·8797302 | 22 22·2 | 283 42 46·3 | 5 54 7·8 | ·655 |
| 22 | 2 19 49·69 | 10 13 56·6 | ·8887836 | 22 21·4 | 286 40 43·3 | 6 5 20·1 | ·652 |
| 23 | 2 23 0·77 | 10 30 8·3 | ·8978526 | 22 20·8 | 289 41 14·8 | 6 15 42·1 | ·649 |
| 24 | 2 26 24·59 | 10 48 1·4 | ·9069215 | 22 20·5 | 292 44 35·9 | 6 25 10·5 | ·645 |
| 25 | 2 30 0·94 | 11 7 30·3 | ·9159770 | 22 20·3 | 295 51 2·8 | 6 33 41·2 | ·642 |
| 26 | 2 33 49·62 | 11 28 29·5 | ·9250058 | 22 20·4 | 299 0 52·2 | 6 41 10·2 | ·638 |
| 27 | 2 37 50·49 | 11 50 53·4 | ·9339966 | 22 20·7 | 302 14 20·9 | 6 47 32·8 | ·634 |
| 28 | 2 42 3·44 | 12 14 36·6 | ·9429377 | 22 21·1 | 305 31 47·4 | 6 52 44·0 | ·629 |
| 29 | 2 46 28·35 | 12 39 33·1 | ·9518193 | 22 21·8 | 308 53 30·0 | 6 56 38·3 | ·625 |
| 30 | 2 51 5·25 | 13 5 37·9 | ·9606318 | 22 22·6 | 312 19 48·5 | 6 59 9·8 | ·620 |
| 31 | 2 55 54·09 | 13 32 45·0 | ·9693646 | 22 23·7 | 315 51 2·3 | 7 0 12·0 | ·614 |
| 32 | 3 0 54·92 | N.14 0 48·8 | 9·9780085 | | | | |

# MAY, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 2 7 24·80 | — 4·48 | 0·39 | N.12 28 20·5 | — 68·8 | 5·7 | 15·2 |
| 2 5 42·44 | 4·04 | 0·39 | 12 1 24·2 | 65·8 | 5·7 | 15·2 |
| 2 4 11·34 | 3·54 | 0·39 | 11 35 49·0 | 62·0 | 5·7 | 15·1 |
| 2 2 52·88 | 2·99 | 0·38 | 11 11 51·7 | 57·6 | 5·6 | 14·9 |
| 2 1 48·20 | 2·40 | 0·38 | 10 49 46·8 | 52·7 | 5·6 | 14·8 |
| 2 0 58·14 | 1·77 | 0·38 | 10 29 45·7 | 47·3 | 5·5 | 14·6 |
| 2 0 23·41 | 1·12 | 0·37 | 10 11 58·2 | 41·6 | 5·4 | 14·4 |
| 2 0 4·46 | — 0·46 | 0·37 | 9 56 31·1 | 35·6 | 5·4 | 14·2 |
| 2 0 1·59 | + 0·22 | 0·37 | 9 43 29·5 | 29·5 | 5·3 | 14·0 |
| 2 0 14·86 | 0·89 | 0·36 | 9 32 56·3 | 23·3 | 5·2 | 13·7 |
| 2 0 44·35 | 1·56 | 0·34 | 9 24 52·7 | 17·0 | 5·1 | 13·5 |
| 2 1 29·91 | 2·23 | 0·33 | 9 19 18·7 | 10·8 | 5·0 | 13·3 |
| 2 2 31·35 | 2·89 | 0·33 | 9 16 12·5 | — 4·7 | 4·9 | 13·0 |
| 2 3 48·36 | 3·53 | 0·32 | 9 15 31·9 | + 1·3 | 4·8 | 12·8 |
| 2 5 20·70 | 4·16 | 0·31 | 9 17 13·4 | 7·1 | 4·7 | 12·5 |
| 2 7 8·00 | 4·78 | 0·30 | 9 21 13·0 | 12·8 | 4·6 | 12·3 |
| 2 9 9·94 | 5·38 | 0·30 | 9 27 26·3 | 18·3 | 4·5 | 12·0 |
| 2 11 26·18 | 5·97 | 0·30 | 9 35 48·2 | 23·5 | 4·5 | 11·8 |
| 2 13 56·32 | 6·54 | 0·29 | 9 46 13·6 | 28·6 | 4·3 | 11·5 |
| 2 16 40·10 | 7·10 | 0·29 | 9 58 37·5 | 33·4 | 4·3 | 11·3 |
| 2 19 37·17 | 7·65 | 0·28 | 10 12 54·3 | 38·0 | 4·2 | 11·1 |
| 2 22 47·26 | 8·19 | 0·27 | 10 28 58·4 | 42·3 | 4·1 | 10·9 |
| 2 26 10·13 | 8·72 | 0·27 | 10 46 44·3 | 46·5 | 4·0 | 10·7 |
| 2 29 45·58 | 9·24 | 0·27 | 11 6 6·6 | 50·4 | 3·9 | 10·4 |
| 2 33 33·39 | 9·75 | 0·27 | 11 26 59·6 | 54·0 | 3·9 | 10·2 |
| 2 37 33·44 | 10·26 | 0·26 | 11 49 17·9 | 57·5 | 3·8 | 10·0 |
| 2 41 45·60 | 10·76 | 0·26 | 12 12 56·0 | 60·7 | 3·7 | 9·8 |
| 2 46 9·77 | 11·26 | 0·25 | 12 37 48·1 | 63·6 | 3·6 | 9·6 |
| 2 50 45·97 | 11·76 | 0·24 | 13 3 49·0 | 66·4 | 3·5 | 9·4 |
| 2 55 34·18 | 12·26 | 0·24 | 13 30 53·1 | 68·9 | 3·5 | 9·2 |
| 3 0 34·45 | 12·76 | 0·23 | 13 58 54·6 | 71·2 | 3·4 | 9·0 |
| 3 5 46·76 | + 13·27 | 0·23 | N.14 27 47·5 | + 73·2 | 3·4 | 8·9 |

# JUNE, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. of Rad. Vect. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 3 0 54·92 | N.14 0 48·8 | 9·9780085 | 22 25·0 | 319 27 32·8 | S.6 59 37·9 | 9·6093357 |
| 2 | 3 6 7·78 | 14 29 43·5 | ·9865532 | 22 26·4 | 323 9 41·1 | 6 57 20·3 | ·6036197 |
| 3 | 3 11 32·79 | 14 59 23·1 | 9·9949885 | 22 28·1 | 326 57 49·0 | 6 53 11·2 | ·5976729 |
| 4 | 3 17 10·06 | 15 29 41·4 | 0·0033029 | 22 30·0 | 330 52 18·9 | 6 47 2·3 | ·5915101 |
| 5 | 3 22 59·76 | 16 0 32·2 | ·0114856 | 22 32·1 | 334 53 33·4 | 6 38 45·3 | ·5851487 |
| 6 | 3 29 2·03 | 16 31 48·6 | ·0195238 | 22 34·3 | 339 1 55·0 | 6 28 11·2 | ·5786089 |
| 7 | 3 35 17·07 | 17 3 23·7 | ·0274037 | 22 36·9 | 343 17 45·7 | 6 15 11·6 | ·5719178 |
| 8 | 3 41 45·05 | 17 35 9·9 | ·0351111 | 22 39·6 | 347 41 26·9 | 5 59 37·9 | ·5651065 |
| 9 | 3 48 26·16 | 18 6 59·7 | ·0426303 | 22 42·6 | 352 13 19·1 | 5 41 22·4 | ·5582100 |
| 10 | 3 55 20·57 | 18 38 44·4 | ·0499443 | 22 45·7 | 356 53 41·0 | 5 20 18·3 | ·5512731 |
| 11 | 4 2 28·44 | 19 10 15·4 | ·0570341 | 22 49·2 | 1 42 46·7 | 4 56 20·1 | ·5443147 |
| 12 | 4 9 49·83 | 19 41 23·0 | ·0638802 | 22 52·8 | 6 40 50·0 | 4 29 24·6 | ·5374824 |
| 13 | 4 17 24·78 | 20 11 57·3 | ·0704612 | 22 56·7 | 11 47 58·7 | 3 59 31·2 | ·5307503 |
| 14 | 4 25 13·26 | 20 41 47·6 | ·0767557 | 23 0·7 | 17 4 15·0 | 3 26 42·7 | ·5242205 |
| 15 | 4 33 15·11 | 21 10 42·5 | ·0827389 | 23 5·0 | 22 29 35·0 | 2 51 6·4 | ·5179708 |
| 16 | 4 41 30·08 | 21 38 30·7 | ·0883891 | 23 9·6 | 28 3 47·6 | 2 12 54·2 | ·5120841 |
| 17 | 4 49 57·76 | 22 5 0·1 | ·0936812 | 23 14·3 | 33 46 32·1 | 1 32 23·3 | ·5066473 |
| 18 | 4 58 37·61 | 22 29 57·7 | ·0985918 | 23 19·2 | 39 37 19·0 | 0 49 57·1 | ·5017485 |
| 19 | 5 7 28·87 | 22 53 12·1 | ·1030966 | 23 24·3 | 45 35 28·0 | S.0 6 4·5 | ·4974733 |
| 20 | 5 16 30·65 | 23 14 31·0 | ·1071770 | 23 29·6 | 51 40 8·3 | N.0 38 40·2 | ·4939030 |
| 21 | 5 25 41·83 | 23 33 43·0 | ·1108141 | 23 35·0 | 57 50 17·8 | 1 23 37·8 | ·4911094 |
| 22 | 5 35 1·19 | 23 50 37·4 | ·1139912 | 23 40·5 | 64 4 47·3 | 2 8 5·6 | ·4891504 |
| 23 | 5 44 27·29 | 24 5 4·6 | ·1166971 | 23 46·1 | 70 22 16·0 | 2 51 20·2 | ·4880693 |
| 24 | 5 53 58·60 | 24 16 56·5 | ·1189258 | 23 51·8 | 76 41 18·5 | 3 32 38·0 | ·4878904 |
| 25 | 6 3 33·48 | 24 26 6·8 | ·1206737 | 23 57·5 | 83 0 25·4 | 4 11 18·2 | ·4886177 |
| 26 | 6 13 10·25 | 24 32 30·6 | ·1219423 | * * | 89 18 4·8 | 4 46 44·6 | ·4902353 |
| 27 | 6 22 47·23 | 24 36 5·3 | ·1227383 | 0 3·1 | 95 32 48·4 | 5 18 27·1 | ·4927060 |
| 28 | 6 32 22·75 | 24 36 49·9 | ·1230729 | 0 8·8 | 101 43 11·2 | 5 46 3·4 | ·4959782 |
| 29 | 6 41 55·27 | 24 34 45·6 | ·1229603 | 0 14·4 | 107 47 57·1 | 6 9 18·5 | ·4999848 |
| 30 | 6 51 23·30 | 24 29 5[illegible] | [illegible]24182 | 0 20·0 | 113 45 58·1 | 6 28 5·8 | ·5046476 |
| 31 | 7 0 45·53 | N.24 [illegible] | | [illegible] 25·4 | 119 36 17·1 | N.6 42 25·7 | 9·5098828 |

# JUNE, 1839.

At Transit over the Meridian of Greenwich.

| Month. | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|---|
| | h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 1 | 3 5 46 ·76 | +13 ·27 | 0 ·23 | N.14 27 47 ·5 | +73 ·2 | 3 ·4 | 8 ·9 |
| 2 | 3 11 11 ·30 | 13 ·78 | 0 ·23 | 14 57 26 ·1 | 75 ·0 | 3 ·3 | 8 ·7 |
| 3 | 3 16 48 ·16 | 14 ·30 | 0 ·22 | 15 27 44 ·2 | 76 ·5 | 3 ·2 | 8 ·5 |
| 4 | 3 22 37 ·51 | 14 ·82 | 0 ·22 | 15 58 35 ·6 | 77 ·7 | 3 ·2 | 8 ·4 |
| 5 | 3 28 39 ·52 | 15 ·35 | 0 ·22 | 16 29 53 ·2 | 78 ·7 | 3 ·1 | 8 ·2 |
| 6 | 3 34 54 ·38 | 15 ·89 | 0 ·22 | 17 1 30 ·6 | 79 ·4 | 3 ·1 | 8 ·1 |
| 7 | 3 41 22 ·28 | 16 ·44 | 0 ·21 | 17 33 19 ·7 | 79 ·7 | 3 ·0 | 7 ·9 |
| 8 | 3 48 3 ·41 | 16 ·99 | 0 ·20 | 18 5 13 ·1 | 79 ·7 | 2 ·9 | 7 ·8 |
| 9 | 3 54 57 ·94 | 17 ·56 | 0 ·20 | 18 37 2 ·2 | 79 ·3 | 2 ·9 | 7 ·7 |
| [illegible] | 4 2 6 ·05 | 18 ·12 | 0 ·19 | 19 8 38 ·4 | 78 ·6 | 2 ·8 | 7 ·5 |
| [illegible] | 4 9 27 ·79 | 18 ·69 | 0 ·19 | 19 39 51 ·8 | 77 ·5 | 2 ·8 | 7 ·4 |
| [illegible] | 4 17 3 ·23 | 19 ·26 | 0 ·19 | 20 10 32 ·6 | 75 ·9 | 2 ·8 | 7 ·3 |
| [illegible] | 4 24 52 ·36 | 19 ·83 | 0 ·19 | 20 40 29 ·7 | 73 ·8 | 2 ·7 | 7 ·2 |
| [illegible] | 4 32 55 ·02 | 20 ·39 | 0 ·19 | 21 9 32 ·3 | 71 ·3 | 2 ·7 | 7 ·1 |
| [illegible] | 4 41 10 ·94 | 20 ·94 | 0 ·18 | 21 37 28 ·3 | 68 ·3 | 2 ·6 | 7 ·0 |
| 6 | 4 49 39 ·75 | 21 ·46 | 0 ·18 | 22 4 5 ·5 | 64 ·7 | 2 ·6 | 6 ·9 |
| 7 | 4 58 20 ·93 | 21 ·96 | 0 ·18 | 22 29 11 ·7 | 60 ·7 | 2 ·6 | 6 ·8 |
| 8 | 5 7 13 ·65 | 22 ·43 | 0 ·18 | 22 52 34 ·3 | 56 ·1 | 2 ·6 | 6 ·8 |
| 9 | 5 16 17 ·10 | 22 ·85 | 0 ·18 | 23 14 0 ·8 | 51 ·0 | 2 ·5 | 6 ·7 |
| [illegible] | 5 25 30 ·10 | 23 ·22 | 0 ·18 | 23 33 20 ·2 | 45 ·5 | 2 ·5 | 6 ·7 |
| | 5 34 51 ·41 | 23 ·54 | 0 ·18 | 23 50 21 ·0 | 39 ·5 | 2 ·5 | 6 ·6 |
| | 5 44 19 ·58 | 23 ·80 | 0 ·18 | 24 4 53 ·9 | 33 ·2 | 2 ·5 | 6 ·6 |
| | 5 53 53 ·07 | 23 ·98 | 0 ·18 | 24 16 50 ·5 | 26 ·5 | 2 ·5 | 6 ·5 |
| | 6 3 30 ·18 | 24 ·10 | 0 ·18 | 24 26 4 ·2 | 19 ·6 | 2 ·5 | 6 ·5 |
| [illegible] | 6 13 9 ·23 | 24 ·14 | 0 ·18 | 24 32 30 ·2 | 12 ·5 | 2 ·5 | 6 ·5 |
| [illegible] | * * * | * | * | * * * | * | * | * |
| [illegible] | 6 22 48 ·49 | 24 ·12 | 0 ·18 | 24 36 5 ·6 | + 5 ·4 | 2 ·5 | 6 ·5 |
| [illegible] | 6 32 26 ·27 | 24 ·02 | 0 ·18 | 24 36 49 ·6 | — 1 ·7 | 2 ·5 | 6 ·5 |
| [illegible] | 6 42 0 ·99 | 23 ·86 | 0 ·18 | 24 34 43 ·5 | 8 ·8 | 2 ·5 | 6 ·5 |
| [illegible] | 6 51 31 ·14 | 23 ·64 | 0 ·18 | 24 29 49 ·6 | 15 ·7 | 2 ·5 | 6 ·5 |
| 1 | 7 0 55 ·40 | +23 ·37 | 0 ·18 | N.24 22 12 ·3 | —22 ·4 | 2 ·5 | 6 ·5 |

# JULY, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log Rad |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | N |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 7 0 45·53 | N.24 22 21·8 | 0·1214662 | 0 25·4 | 119 36 17·1 | N.6 42 25·7 | 9·509 |
| 2 | 7 10 0·77 | 24 12 12·1 | ·1201259 | 0 30·8 | 125 18 9·4 | 6 52 25·0 | ·515 |
| 3 | 7 19 7·99 | 23 59 32·0 | ·1184201 | 0 35·9 | 130 51 0·2 | 6 58 15·5 | ·521 |
| 4 | 7 28 6·34 | 23 44 28·8 | ·1163714 | 0 41·0 | 136 14 27·0 | 7 0 13·1 | ·528 |
| 5 | 7 36 55·09 | 23 27 10·2 | ·1140028 | 0 45·9 | 141 28 17·4 | 6 58 36·1 | ·534 |
| 6 | 7 45 33·71 | 23 7 44·6 | ·1113357 | 0 50·6 | 146 32 27·6 | 6 53 44·3 | ·541 |
| 7 | 7 54 1·76 | 22 46 20·1 | ·1083918 | 0 55·1 | 151 27 1·8 | 6 45 58·3 | ·548 |
| 8 | 8 2 18·90 | 22 23 5·3 | ·1051909 | 0 59·5 | 156 12 10·3 | 6 35 38·1 | ·555 |
| 9 | 8 10 24·93 | 21 58 8·4 | ·1017512 | 1 3·6 | 160 48 8·4 | 6 23 3·2 | ·562 |
| 10 | 8 18 19·72 | 21 31 37·7 | ·0980899 | 1 7·6 | 165 15 15·3 | 6 8 32·0 | ·569 |
| 11 | 8 26 3·22 | 21 3 40·9 | ·0942232 | 1 11·4 | 169 33 53·2 | 5 52 21·3 | ·57 |
| 12 | 8 33 35·44 | 20 34 25·7 | ·0901645 | 1 15·0 | 173 44 26·3 | 5 34 46·6 | ·58 |
| 13 | 8 40 56·42 | 20 3 59·7 | ·0859266 | 1 18·4 | 177 47 19·4 | 5 16 1·9 | ·58 |
| 14 | 8 48 6·26 | 19 32 29·8 | ·0815208 | 1 21·6 | 181 42 58·5 | 4 56 19·6 | ·59 |
| 15 | 8 55 5·08 | 19 0 2·6 | ·0769570 | 1 24·6 | 185 31 49·4 | 4 35 50·6 | ·60 |
| 16 | 9 1 53·02 | 18 26 44·6 | ·0722442 | 1 27·5 | 189 14 18·1 | 4 14 44·5 | ·60 |
| 17 | 9 8 30·23 | 17 52 42·0 | ·0673899 | 1 30·2 | 192 50 49·3 | 3 53 9·9 | ·61 |
| 18 | 9 14 56·87 | 17 18 0·4 | ·0624008 | 1 32·7 | 196 21 47·6 | 3 31 14·2 | ·61 |
| 19 | 9 21 13·09 | 16 42 45·7 | ·0572823 | 1 35·0 | 199 47 36·9 | 3 9 3·6 | ·62 |
| 20 | 9 27 19·04 | 16 7 3·0 | ·0520389 | 1 37·1 | 203 8 39·6 | 2 46 43·8 | ·62 |
| 21 | 9 33 14·88 | 15 30 57·6 | ·0466753 | 1 39·1 | 206 25 17·6 | 2 24 19·4 | ·63 |
| 22 | 9 39 0·72 | 14 54 34·2 | ·0411937 | 1 40·9 | 209 37 51·8 | 2 1 54·7 | ·63 |
| 23 | 9 44 36·70 | 14 17 57·7 | ·0355977 | 1 42·6 | 212 46 42·2 | 1 39 33·2 | ·64 |
| 24 | 9 50 2·91 | 13 41 12·6 | ·0298884 | 1 44·1 | 215 52 7·8 | 1 17 17·9 | ·64 |
| 25 | 9 55 19·41 | 13 4 23·6 | ·0240683 | 1 45·4 | 218 54 26·4 | 0 55 11·4 | ·64 |
| 26 | 10 0 26·27 | 12 27 34·9 | ·0181373 | 1 46·5 | 221 53 55·8 | 0 33 16·0 | ·65 |
| 27 | 10 5 23·53 | 11 50 50·8 | ·0120971 | 1 47·5 | 224 50 52·1 | N.0 11 33·9 | ·65 |
| 28 | 10 10 11·21 | 11 14 15·6 | 0·0059475 | 1 48·4 | 227 45 31·8 | S.0 9 53·4 | ·65 |
| 29 | 10 14 49·24 | 10 37 53·8 | 9·9996891 | 1 49·1 | 230 38 9·9 | 0 31 4·2 | ·65 |
| 30 | 10 19 17·61 | 10 1 49·4 | ·9933214 | 1 49·6 | 233 29 1·4 | 0 51 57·2 | ·66 |
| 31 | 10 23 36·23 | 9 26 6·9 | ·9868453 | 1 49·9 | 236 18 20·1 | 1 12 31·0 | ·66 |
| 32 | 10 27 44·97 | N. 8 50 50·6 | 9·9802603 | 1 50·1 | 239 6 20·0 | S.1 32 44 | |

# JULY, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 7 0 55 ·40 | + 23 ·37 | 0 ·18 | N.24 22 12 ·3 | — 22 ·4 | 2 ·5 | 6 ·5 |
| 7 10 12 ·54 | 23 ·05 | 0 ·18 | 24 11 57 ·5 | 28 ·8 | 2 ·5 | 6 ·5 |
| 7 19 21 ·52 | 22 ·69 | 0 ·18 | 23 59 11 ·1 | 35 ·0 | 2 ·5 | 6 ·5 |
| 7 28 21 ·52 | 22 ·30 | 0 ·18 | 23 44 1 ·0 | 40 ·8 | 2 ·5 | 6 ·6 |
| 7 37 11 ·77 | 21 ·88 | 0 ·18 | 23 26 35 ·0 | 46 ·3 | 2 ·5 | 6 ·6 |
| 7 45 51 ·74 | 21 ·44 | 0 ·18 | 23 7 1 ·5 | 51 ·4 | 2 ·5 | 6 ·7 |
| 7 54 20 ·99 | 20 ·99 | 0 ·18 | 22 45 28 ·7 | 56 ·2 | 2 ·5 | 6 ·7 |
| 8 2 39 ·19 | 20 ·53 | 0 ·18 | 22 22 5 ·5 | 60 ·7 | 2 ·6 | 6 ·8 |
| 8 10 46 ·14 | 20 ·05 | 0 ·18 | 21 57 0 ·0 | 64 ·7 | 2 ·6 | 6 ·8 |
| 8 18 41 ·72 | 19 ·58 | 0 ·18 | 21 30 20 ·9 | 68 ·5 | 2 ·6 | 6 ·8 |
| 8 26 25 ·90 | 19 ·10 | 0 ·18 | 21 2 15 ·7 | 71 ·9 | 2 ·6 | 6 ·9 |
| 8 33 58 ·67 | 18 ·63 | 0 ·18 | 20 32 52 ·3 | 75 ·0 | 2 ·6 | 7 ·0 |
| 8 41 20 ·11 | 18 ·16 | 0 ·18 | 20 2 18 ·5 | 77 ·8 | 2 ·6 | 7 ·0 |
| 8 48 30 ·30 | 17 ·69 | 0 ·19 | 19 30 41 ·0 | 80 ·3 | 2 ·7 | 7 ·1 |
| 8 55 29 ·37 | 17 ·23 | 0 ·19 | 18 58 6 ·5 | 82 ·5 | 2 ·7 | 7 ·2 |
| 9 2 17 ·46 | 16 ·78 | 0 ·19 | 18 24 41 ·7 | 84 ·5 | 2 ·8 | 7 ·3 |
| 9 8 54 ·75 | 16 ·33 | 0 ·19 | 17 50 32 ·8 | 86 ·2 | 2 ·8 | 7 ·4 |
| 9 15 21 ·39 | 15 ·89 | 0 ·19 | 17 15 45 ·3 | 87 ·7 | 2 ·8 | 7 ·4 |
| 9 21 37 ·54 | 15 ·46 | 0 ·19 | 16 40 25 ·2 | 88 ·9 | 2 ·8 | 7 ·5 |
| 9 27 43 ·35 | 15 ·03 | 0 ·20 | 16 4 37 ·6 | 90 ·0 | 2 ·9 | 7 ·6 |
| 9 33 38 ·99 | 14 ·61 | 0 ·20 | 15 28 27 ·8 | 90 ·8 | 2 ·9 | 7 ·7 |
| 9 39 24 ·59 | 14 ·19 | 0 ·20 | 14 52 0 ·7 | 91 ·4 | 2 ·9 | 7 ·8 |
| 9 45 0 ·26 | 13 ·78 | 0 ·21 | 14 15 20 ·8 | 91 ·9 | 3 ·0 | 7 ·9 |
| 9 50 26 ·11 | 13 ·37 | 0 ·21 | 13 38 33 ·1 | 92 ·1 | 3 ·0 | 8 ·0 |
| 9 55 42 ·20 | 12 ·97 | 0 ·21 | 13 1 41 ·9 | 92 ·1 | 3 ·0 | 8 ·1 |
| 10 0 48 ·60 | 12 ·57 | 0 ·21 | 12 24 51 ·6 | 92 ·0 | 3 ·1 | 8 ·2 |
| 10 5 45 ·35 | 12 ·16 | 0 ·21 | 11 48 6 ·5 | 91 ·7 | 3 ·1 | 8 ·3 |
| 10 10 32 ·47 | 11 ·76 | 0 ·21 | 11 11 30 ·9 | 91 ·2 | 3 ·2 | 8 ·5 |
| 10 15 9 ·91 | 11 ·36 | 0 ·21 | 10 35 9 ·2 | 90 ·6 | 3 ·2 | 8 ·6 |
| 10 19 37 ·64 | 10 ·95 | 0 ·22 | 9 59 5 ·5 | 89 ·7 | 3 ·3 | 8 ·7 |
| 10 23 55 ·57 | 10 ·54 | 0 ·22 | 9 23 24 ·3 | 88 ·7 | 3 ·4 | 8 ·9 |
| | + 10 ·13 | 0 ·22 | N. 8 48 9 ·9 | — 87 ·5 | 3 ·4 | 9 ·0 |

# AUGUST, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | R |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 10 27 44·97 | N.8 50 50·6 | 9·9802603 | 1 50·1 | 239 6 20·0 | S. 1 32 44·5 | 9· |
| 2 | 10 31 43·71 | 8 16 5·0 | ·9735671 | 1 50·1 | 241 53 14·4 | 1 52 36·6 | · |
| 3 | 10 35 32·22 | 7 41 54·8 | ·9667658 | 1 50·0 | 244 39 16·6 | 2 12 6·3 | · |
| 4 | 10 39 10·28 | 7 8 25·0 | ·9598579 | 1 49·7 | 247 24 39·2 | 2 31 12·4 | · |
| 5 | 10 42 37·61 | 6 35 40·5 | ·9528440 | 1 49·2 | 250 9 34·8 | 2 49 54·1 | · |
| 6 | 10 45 53·90 | 6 3 46·7 | ·9457270 | 1 48·5 | 252 54 15·9 | 3 8 10·1 | · |
| 7 | 10 48 58·78 | 5 32 49·1 | ·9385103 | 1 47·6 | 255 38 54·6 | 3 25 59·4 | · |
| 8 | 10 51 51·83 | 5 2 53·7 | ·9311985 | 1 46·5 | 258 23 42·8 | 3 43 20·8 | · |
| 9 | 10 54 32·59 | 4 34 7·0 | ·9237973 | 1 45·3 | 261 8 53·0 | 4 0 12·9 | · |
| 10 | 10 57 0·56 | 4 6 35·2 | ·9163140 | 1 43·8 | 263 54 37·6 | 4 16 34·6 | · |
| 11 | 10 59 15·20 | 3 40 26·0 | ·9087594 | 1 42·1 | 266 41 8·8 | 4 32 24·4 | · |
| 12 | 11 1 15·89 | 3 15 46·7 | ·9011449 | 1 40·1 | 269 28 39·4 | 4 47 40·6 | · |
| 13 | 11 3 2·01 | 2 52 45·0 | ·8934869 | 1 37·9 | 272 17 21·4 | 5 2 21·4 | · |
| 14 | 11 4 32·87 | 2 31 29·9 | ·8858037 | 1 35·5 | 275 7 28·3 | 5 16 25·0 | · |
| 15 | 11 5 47·80 | 2 12 10·6 | ·8781184 | 1 32·8 | 277 59 12·9 | 5 29 49·1 | · |
| 16 | 11 6 46·06 | 1 54 56·2 | ·8704591 | 1 29·8 | 280 52 49·3 | 5 42 31·5 | · |
| 17 | 11 7 26·97 | 1 39 57·1 | ·8628582 | 1 26·5 | 283 48 31·1 | 5 54 29·6 | · |
| 18 | 11 7 49·81 | 1 27 23·5 | ·8553545 | 1 22·9 | 286 46 32·7 | 6 5 40·3 | · |
| 19 | 11 7 53·94 | 1 17 25·9 | ·8479932 | 1 19·1 | 289 47 9·3 | 6 16 0·8 | · |
| 20 | 11 7 38·80 | 1 10 14·7 | ·8408279 | 1 14·9 | 292 50 35·9 | 6 25 27·3 | · |
| 21 | 11 7 3·94 | 1 6 0·6 | ·8339186 | 1 10·3 | 295 57 8·5 | 6 33 56·2 | · |
| 22 | 11 6 9·04 | 1 4 53·3 | ·8273331 | 1 5·5 | 299 7 4·0 | 6 41 23·2 | · |
| 23 | 11 4 54·07 | 1 7 1·5 | ·8211487 | 1 0·3 | 302 20 39·7 | 6 47 43·6 | · |
| 24 | 11 3 19·14 | 1 12 32·7 | ·8154495 | 0 54·8 | 305 38 13·3 | 6 52 52·5 | · |
| 25 | 11 1 24·82 | 1 21 31·9 | ·8103261 | 0 48·9 | 309 0 3·9 | 6 56 44·3 | · |
| 26 | 10 59 12·00 | 1 34 1·9 | ·8058767 | 0 42·8 | 312 26 30·6 | 6 59 13·1 | · |
| 27 | 10 56 42·00 | 1 50 1·6 | ·8022021 | 0 36·4 | 315 57 53·3 | 7 0 12·4 | · |
| 28 | 10 53 56·67 | 2 9 26·1 | ·7994037 | 0 29·7 | 319 34 33·1 | 6 59 35·3 | · |
| 29 | 10 50 58·32 | 2 32 5·6 | ·7975808 | [illegible] | [illegible] | [illegible] | · |
| 30 | 10 47 49·84 | 2 57 45·2 | ·7968264 | | | | |
| 31 | 10 44 34·57 | 3 26 5·3 | ·797222 | | | | |
| 32 | 10 41 16·33 | N.3 56 40·0 | 9·7988[illegible] | | | | |

# AUGUST, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 10 28 3·58 | +10·13 | 0·22 | N. 8 48 9·9 | −87·5 | 3·4 | 9·0 |
| 10 32 1·54 | 9·70 | 0·22 | 8 13 26·9 | 86·1 | 3·4 | 9·1 |
| 10 35 49·25 | 9·27 | 0·23 | 7 39 19·8 | 84·5 | 3·5 | 9·3 |
| 10 39 26·46 | 8·83 | 0·23 | 7 5 53·7 | 82·7 | 3·5 | 9·4 |
| 10 42 52·89 | 8·37 | 0·24 | 6 33 13·5 | 80·6 | 3·6 | 9·6 |
| 10 46 8·24 | 7·90 | 0·25 | 6 1 24·7 | 78·4 | 3·7 | 9·7 |
| 10 49 12·13 | 7·42 | 0·25 | 5 30 32·6 | 75·9 | 3·7 | 9·9 |
| 10 52 4·15 | 6·91 | 0·26 | 5 0 43·4 | 73·1 | 3·8 | 10·1 |
| 10 54 43·85 | 6·39 | 0·26 | 4 32 3·6 | 70·1 | 3·9 | 10·2 |
| 10 57 10·72 | 5·85 | 0·26 | 4 4 39·2 | 66·8 | 3·9 | 10·4 |
| 10 59 24·22 | 5·28 | 0·27 | 3 38 38·1 | 63·2 | 4·0 | 10·6 |
| 11 1 23·75 | 4·68 | 0·27 | 3 14 7·3 | 59·3 | 4·1 | 10·8 |
| 11 3 8·69 | 4·06 | 0·28 | 2 51 14·8 | 55·0 | 4·2 | 11·0 |
| 11 4 38·35 | 3·41 | 0·28 | 2 30 9·3 | 50·4 | 4·2 | 11·2 |
| 11 5 52·07 | 2·73 | 0·29 | 2 11 0·1 | 45·3 | 4·3 | 11·4 |
| 11 6 49·13 | 2·02 | 0·29 | 1 53 56·0 | 39·9 | 4·4 | 11·6 |
| 11 7 28·86 | 1·28 | 0·30 | 1 39 7·5 | 34·1 | 4·5 | 11·8 |
| 11 7 50·57 | + 0·52 | 0·30 | 1 26 44·7 | 27·8 | 4·5 | 12·0 |
| 11 7 53·62 | − 0·27 | 0·31 | 1 16 57·7 | 21·1 | 4·6 | 12·2 |
| 11 7 37·48 | 1·08 | 0·31 | 1 9 57·0 | 13·9 | 4·7 | 12·4 |
| 11 7 1·73 | 1·90 | 0·32 | 1 5 52·9 | − 6·4 | 4·8 | 12·6 |
| 11 6 6·06 | 2·73 | 0·32 | 1 4 54·7 | + 1·6 | 4·8 | 12·8 |
| 11 4 50·49 | 3·56 | 0·33 | 1 7 11·2 | 9·9 | 4·9 | 13·0 |
| 11 3 15·14 | 4·38 | 0·33 | 1 12 49·3 | 18·4 | 4·9 | 13·1 |
| 11 1 20·60 | 5·16 | 0·34 | 1 21 53·9 | 27·0 | 5·0 | 13·3 |
| 10 59 7·77 | 5·90 | 0·34 | 1 34 27·4 | 35·7 | 5·1 | 13·4 |
| 10 56 37·99 | 6·57 | 0·34 | 1 50 28·5 | 44·3 | 5·1 | 13·5 |
| 10 53 53·11 | 7·16 | 0·34 | 2 9 52·3 | 52·6 | 5·1 | 13·6 |
| 10 50 55·40 | 7·63 | 0·35 | 2 32 28·7 | 60·3 | 5·2 | 13·7 |
| 10 47 47·73 | 7·98 | 0·35 | 2 58 3·0 | 67·4 | 5·2 | 13·7 |
| [illegible] 33·38 | 8·19 | 0·35 | 3 26 15·9 | 73·5 | 5·2 | 13·7 |
| | −{[illegible]} | {[illegible]} | N.{[illegible]} | +{[illegible]} | {[illegible]} | {[illegible]} |

# SEPTEMBER, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | |
|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ |
| 1 | 10 41 16·33 | N.3 56 40·0 | 9·7988363 | { 0 1·4 / 23 54·2 } | 335 1 19·4 | S.6 38 27·8 |
| 2 | 10 37 59·30 | 4 28 59·4 | ·8017131 | 23 47·1 | 339 9 54·1 | 6 27 49·5 |
| 3 | 10 34 47·85 | 5 2 29·8 | ·8058789 | 23 40·2 | 343 25 58·6 | 6 14 45·2 |
| 4 | 10 31 46·50 | 5 36 34·2 | ·8113303 | 23 33·5 | 347 49 54·5 | 5 59 6·8 |
| 5 | 10 28 59·78 | 6 10 33·9 | ·8180392 | 23 27·1 | 352 22 1·5 | 5 40 46·2 |
| 6 | 10 26 31·88 | 6 43 50·7 | ·8259517 | 23 21·1 | 357 2 38·2 | 5 19 36·8 |
| 7 | 10 24 26·79 | 7 15 46·8 | ·8349898 | 23 15·5 | 1 52 0·2 | 4 55 33·2 |
| 8 | 10 22 48·00 | 7 45 46·8 | ·8450535 | 23 10·4 | 6 50 19·4 | 4 28 32·2 |
| 9 | 10 21 38·42 | 8 13 19·0 | ·8560277 | 23 5·8 | 11 57 44·4 | 3 58 33·4 |
| 10 | 10 21 0·36 | 8 37 54·8 | ·8677832 | 23 1·8 | 17 14 16·8 | 3 25 39·8 |
| 11 | 10 20 55·47 | 8 59 10·4 | ·8801833 | 22 58·3 | 22 39 53·1 | 2 49 58·5 |
| 12 | 10 21 24·76 | 9 16 46·2 | ·8930878 | 22 55·4 | 28 14 21·2 | 2 11 41·7 |
| 13 | 10 22 28·64 | 9 30 26·9 | ·9063566 | 22 53·1 | 33 57 21·1 | 1 31 7·1 |
| 14 | 10 24 6·84 | 9 40 1·8 | ·9198522 | 22 51·3 | 39 48 21·4 | 0 48 37·8 |
| 15 | 10 26 18·59 | 9 45 24·0 | ·9334452 | 22 50·1 | 45 46 42·7 | S.0 4 43·0 |
| 16 | 10 29 2·64 | 9 46 30·4 | ·9470143 | 22 49·4 | 51 51 34·2 | N.0 40 2·6 |
| 17 | 10 32 17·32 | 9 43 21·5 | ·9604470 | 22 49·1 | 58 1 53·3 | 1 24 59·8 |
| 18 | 10 36 0·62 | 9 36 1·0 | ·9736445 | 22 49·3 | 64 16 29·1 | 2 9 26·2 |
| 19 | 10 40 10·28 | 9 24 35·6 | ·9865197 | 22 49·9 | 70 34 2·3 | 2 52 37·9 |
| 20 | 10 44 43·84 | 9 9 14·6 | 9·9989975 | 22 50·9 | 76 53 5·3 | 3 33 51·2 |
| 21 | 10 49 38·78 | 8 50 9·5 | 0·0110183 | 22 52·2 | 83 12 10·1 | 4 12 26·2 |
| 22 | 10 54 52·49 | 8 27 33·7 | ·0225345 | 22 53·7 | 89 29 45·4 | 4 47 46·1 |
| 23 | 11 0 22·46 | 8 1 42·4 | ·0335102 | 22 55·5 | 95 44 21·7 | 5 19 21·6 |
| 24 | 11 6 6·26 | 7 32 51·0 | ·0439226 | 22 57·5 | 101 54 35·2 | 5 46 49·9 |
| 25 | 11 12 1·57 | 7 1 16·1 | ·0537581 | 22 59·6 | 107 59 9·3 | 6 9 56·9 |
| 26 | 11 18 6·29 | 6 27 14·5 | ·0630134 | 23 1·9 | 113 56 57·0 | 6 28 36·1 |
| 27 | 11 24 18·49 | 5 51 2·7 | ·0716894 | 23 4·2 | 119 47 0·5 | 6 42 47·8 |
| 28 | 11 30 36·47 | 5 12 56·7 | ·0797997 | 23 6·6 | 125 28 36·6 | 6 52 39·3 |
| 29 | 11 36 58·75 | 4 33 11·8 | ·0873584 | 23 9·1 | 131 1 10·4 | 6 58 22·5 |
| 30 | 11 43 24·04 | 3 52 2·5 | ·0943846 | 23 11·6 | 136 24 20·0 | 7 |
| 31 | 11 49 51·26 | N.3 9 42·3 | 0·1008995 | 23 14·2 | 141 37 52·8 | N |

# SEPTEMBER, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| { 10 41 16 ·14 / 10 38 0 ·06 } | − { 8 ·22 / 8 ·08 } | { 0 ·34 / 0 ·34 } | N. { 8 56 41 ·8 / 4 28 51 ·4 } | + { 78 ·5 / 84 ·1 } | { 5 ·1 / 5 ·1 } | { 13 ·6 / 13 ·5 } |
| 10 34 49 ·53 | 7 ·76 | 0 ·34 | 5 2 11 ·6 | 84 ·3 | 5 ·1 | 13 ·4 |
| 10 31 48 ·93 | 7 ·26 | 0 ·33 | 5 36 6 ·0 | 84 ·9 | 5 ·0 | 13 ·2 |
| 10 29 2 ·70 | 6 ·57 | 0 ·33 | 6 9 56 ·5 | 84 ·0 | 4 ·9 | 13 ·0 |
| 10 26 35 ·03 | 5 ·71 | 0 ·32 | 6 43 5 ·8 | 81 ·5 | 4 ·8 | 12 ·8 |
| 10 24 29 ·85 | 4 ·70 | 0 ·31 | 7 14 56 ·3 | 77 ·5 | 4 ·7 | 12 ·5 |
| 10 22 50 ·63 | 3 ·55 | 0 ·30 | 7 44 53 ·2 | 72 ·1 | 4 ·6 | 12 ·2 |
| 10 21 40 ·31 | 2 ·29 | 0 ·30 | 8 12 24 ·8 | 65 ·4 | 4 ·5 | 11 ·9 |
| 10 21 1 ·20 | − 0 ·95 | 0 ·29 | 8 37 2 ·7 | 57 ·6 | 4 ·4 | 11 ·6 |
| 10 20 55 ·01 | + 0 ·45 | 0 ·29 | 8 58 22 ·9 | 48 ·9 | 4 ·3 | 11 ·3 |
| 10 21 22 ·81 | 1 ·87 | 0 ·28 | 9 16 5 ·7 | 39 ·5 | 4 ·2 | 11 ·0 |
| 10 22 25 ·02 | 3 ·31 | 0 ·27 | 9 29 55 ·3 | 29 ·5 | 4 ·0 | 10 ·7 |
| 10 24 1 ·52 | 4 ·73 | 0 ·26 | 9 39 40 ·6 | 19 ·2 | 3 ·9 | 10 ·3 |
| 10 26 11 ·55 | 6 ·10 | 0 ·26 | 9 45 14 ·3 | + 8 ·6 | 3 ·8 | 10 ·0 |
| 10 28 53 ·94 | 7 ·42 | 0 ·25 | 9 46 33 ·1 | − 2 ·0 | 3 ·7 | 9 ·7 |
| 10 32 7 ·07 | 8 ·66 | 0 ·23 | 9 43 36 ·7 | 12 ·6 | 3 ·5 | 9 ·4 |
| 10 35 48 ·97 | 9 ·82 | 0 ·22 | 9 36 28 ·5 | 23 ·0 | 3 ·4 | 9 ·1 |
| 10 39 57 ·43 | 10 ·87 | 0 ·22 | 9 25 14 ·8 | 33 ·1 | 3 ·4 | 8 ·9 |
| 10 44 29 ·99 | 11 ·82 | 0 ·21 | 9 10 4 ·7 | 42 ·7 | 3 ·2 | 8 ·6 |
| 10 49 24 ·15 | 12 ·67 | 0 ·21 | 8 51 9 ·5 | 51 ·8 | 3 ·2 | 8 ·4 |
| 10 54 37 ·31 | 13 ·41 | 0 ·20 | 8 28 42 ·2 | 60 ·3 | 3 ·1 | 8 ·2 |
| 11 0 6 ·94 | 14 ·04 | 0 ·20 | 8 2 57 ·9 | 68 ·2 | 3 ·0 | 8 ·0 |
| 11 5 50 ·58 | 14 ·58 | 0 ·19 | 7 34 12 ·3 | 75 ·4 | 2 ·9 | 7 ·8 |
| 11 11 45 ·92 | 15 ·02 | 0 ·19 | 7 2 41 ·6 | 82 ·0 | 2 ·9 | 7 ·6 |
| 11 17 50 ·82 | 15 ·38 | 0 ·18 | 6 28 43 ·0 | 87 ·8 | 2 ·8 | 7 ·4 |
| 11 24 3 ·32 | 15 ·65 | 0 ·18 | 5 52 32 ·8 | 92 ·9 | 2 ·8 | 7 ·3 |
| 11 30 21 ·72 | 15 ·87 | 0 ·18 | 5 14 27 ·3 | 97 ·4 | 2 ·7 | 7 ·1 |
| 11 36 44 ·51 | 16 ·02 | 0 ·18 | 4 34 41 ·8 | 101 ·3 | 2 ·6 | 7 ·0 |
| | 16 ·13 | 0 ·18 | 3 53 31 ·1 | 104 ·5 | 2 ·6 | 6 ·9 |
| | ·19 | 0 ·18 | 3 11 8 ·7 | 107 ·2 | 2 ·6 | 6 ·8 |
| | | 0 ·17 | N. 2 27 47 ·2 | −109 ·5 | 2 ·5 | 6 ·7 |

# OCTOBER, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | L Ra |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | N |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 11 49 51·26 | N. 3 9 42·3 | 0·1008995 | 23 14·2 | 141 37 52·8 | N. 6 58 30·0 | 9·5 |
| 2 | 11 56 19·50 | 2 26 23·7 | ·1069264 | 23 16·7 | 146 41 45·3 | 6 53 32·7 | ·5 |
| 3 | 12 2 48·02 | 1 42 18·0 | ·1124887 | 23 19·2 | 151 36 1·6 | 6 45 41·6 | ·5 |
| 4 | 12 9 16·27 | 0 57 35·8 | ·1176113 | 23 21·8 | 156 20 52·8 | 6 35 17·1 | ·5 |
| 5 | 12 15 43·75 | N. 0 12 25·9 | ·1223184 | 23 24·3 | 160 56 34·2 | 6 22 38·4 | ·5 |
| 6 | 12 22 10·14 | S. 0 33 2·9 | ·1266322 | 23 26·7 | 165 23 25·0 | 6 8 3·9 | ·5 |
| 7 | 12 28 35·17 | 1 18 43·5 | ·1305751 | 23 29·2 | 169 41 47·5 | 5 51 50·4 | |
| 8 | 12 34 58·68 | 2 4 28·9 | ·1341690 | 23 31·6 | 173 52 6·3 | 5 34 13·8 | |
| 9 | 12 41 20·55 | 2 50 13·6 | ·1374321 | 23 34·1 | 177 54 45·8 | 5 15 26·9 | |
| 10 | 12 47 40·72 | 3 35 51·8 | ·1403844 | 23 36·4 | 181 50 12·2 | 4 55 42·8 | |
| 11 | 12 53 59·21 | 4 21 19·3 | ·1430412 | 23 38·7 | 185 38 51·2 | 4 35 12·5 | |
| 12 | 13 0 16·03 | 5 6 31·7 | ·1454201 | 23 41·0 | 189 21 8·8 | 4 14 5·5 | |
| 13 | 13 6 31·23 | 5 51 25·4 | ·1475359 | 23 43·3 | 192 57 29·7 | 3 52 30·1 | |
| 14 | 13 12 44·89 | 6 35 56·9 | ·1493997 | 23 45·6 | 196 28 18·5 | 3 30 33·8 | |
| 15 | 13 18 57·13 | 7 20 3·4 | ·1510243 | 23 47·8 | 199 53 58·9 | 3 8 22·9 | |
| 16 | 13 25 8·04 | 8 3 42·2 | ·1524206 | 23 50·1 | 203 14 53·6 | 2 46 2·8 | |
| 17 | 13 31 17·75 | 8 46 50·7 | ·1535985 | 23 52·3 | 206 31 23·9 | 2 23 38·3 | |
| 18 | 13 37 26·39 | 9 29 27·1 | ·1545671 | 23 54·5 | 209 43 51·1 | 2 1 13·7 | |
| 19 | 13 43 34·09 | 10 11 29·1 | ·1553335 | 23 56·6 | 212 52 34·8 | 1 38 52·3 | |
| 20 | 13 49 41·00 | 10 52 55·0 | ·1559044 | 23 58·8 | 215 57 54·3 | 1 16 37·1 | |
| 21 | 13 55 47·23 | 11 33 42·9 | ·1562867 | * * | 219 0 7·3 | 0 54 31·0 | |
| 22 | 14 1 52·94 | 12 13 51·4 | ·1564849 | 0 0·9 | 221 59 31·7 | 0 32 36·0 | |
| 23 | 14 7 58·29 | 12 53 19·2 | ·1565039 | 0 3·1 | 224 56 24·1 | N. 0 10 54·2 | |
| 24 | 14 14 3·38 | 13 32 4·6 | ·1563474 | 0 5·2 | 227 50 59·7 | S. 0 10 32·6 | |
| 25 | 14 20 8·33 | 14 10 6·2 | ·1560181 | 0 7·4 | 230 43 34·5 | 0 31 42·9 | |
| 26 | 14 26 13·28 | 14 47 22·8 | ·1555185 | 0 9·5 | 233 34 23·2 | 0 52 35·1 | |
| 27 | 14 32 18·34 | 15 23 53·1 | ·1548504 | 0 11·7 | 236 23 39·6 | 1 13 8·5 | |
| 28 | 14 38 23·60 | 15 59 35·8 | ·1540153 | 0 13·8 | 239 11 37·4 | 1 | |
| 29 | 14 44 29·18 | 16 34 29·7 | ·1530132 | 0 16·0 | 241 58 30·7 | | |
| 30 | 14 50 35·15 | 17 8 33·4 | ·1518445 | 0 18·1 | 244 44 31· | | |
| 31 | 14 56 41·60 | 17 41 45·7 | ·1505091 | 0 20·3 | 247 29 53· | | |
| 32 | 15 2 48·61 | S. 18 14 5·3 | 0·1490054 | 0 22·5 | 250 14 48·0 | | |

# OCTOBER, 1839.

At Transit over the Meridian of Greenwich.

| rent ht sion. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 7 ·13 | +16 ·22 | 0 ·17 | N. 2 27 47 ·2 | —109 ·5 | 2 ·5 | 6 ·7 |
| 36 ·34 | 16 ·22 | 0 ·17 | 1 43 38 ·2 | 111 ·2 | 2 ·5 | 6 ·6 |
| 5 ·29 | 16 ·19 | 0 ·17 | 0 58 52 ·1 | 112 ·6 | 2 ·5 | 6 ·5 |
| 33 ·47 | 16 ·15 | 0 ·17 | N. 0 13 38 ·2 | 113 ·5 | 2 ·5 | 6 ·5 |
| 0 ·56 | 16 ·10 | 0 ·16 | S. 0 31 55 ·0 | 114 ·2 | 2 ·4 | 6 ·4 |
| 26 ·30 | 16 ·04 | 0 ·16 | 1 17 40 ·1 | 114 ·5 | 2 ·4 | 6 ·4 |
| 50 ·49 | 15 ·97 | 0 ·16 | 2 3 30 ·2 | 114 ·6 | 2 ·4 | 6 ·3 |
| 13 ·04 | 15 ·90 | 0 ·15 | 2 49 19 ·5 | 114 ·5 | 2 ·3 | 6 ·2 |
| 33 ·88 | 15 ·83 | 0 ·15 | 3 35 2 ·5 | 114 ·1 | 2 ·3 | 6 ·2 |
| 53 ·01 | 15 ·76 | 0 ·15 | 4 20 34 ·7 | 113 ·6 | 2 ·3 | 6 ·2 |
| 10 ·47 | 15 ·69 | 0 ·15 | 5 5 51 ·7 | 112 ·8 | 2 ·3 | 6 ·2 |
| 26 ·30 | 15 ·63 | 0 ·15 | 5 50 50 ·0 | 112 ·0 | 2 ·3 | 6 ·1 |
| 40 ·57 | 15 ·56 | 0 ·15 | 6 35 26 ·1 | 111 ·0 | 2 ·3 | 6 ·1 |
| 53 ·41 | 15 ·51 | 0 ·15 | 7 19 37 ·0 | 109 ·9 | 2 ·3 | 6 ·1 |
| 4 ·91 | 15 ·45 | 0 ·15 | 8 3 20 ·2 | 108 ·7 | 2 ·3 | 6 ·0 |
| 15 ·20 | 15 ·41 | 0 ·15 | 8 46 32 ·9 | 107 ·4 | 2 ·3 | 6 ·0 |
| 24 ·41 | 15 ·36 | 0 ·15 | 9 29 13 ·5 | 106 ·0 | 2 ·3 | 6 ·0 |
| 32 ·67 | 15 ·33 | 0 ·15 | 10 11 19 ·5 | 104 ·5 | 2 ·3 | 6 ·0 |
| 40 ·14 | 15 ·30 | 0 ·15 | 10 52 49 ·3 | 103 ·0 | 2 ·3 | 6 ·0 |
| 46 ·92 | 15 ·27 | 0 ·15 | 11 33 41 ·0 | 101 ·3 | 2 ·3 | 6 ·0 |
| * | * | * | * * * | * | * | * |
| 53 ·18 | 15 ·25 | 0 ·15 | 12 13 53 ·0 | 99 ·6 | 2 ·3 | 6 ·0 |
| 59 ·08 | 15 ·24 | 0 ·16 | 12 53 24 ·2 | 97 ·9 | 2 ·3 | 6 ·0 |
| 4 ·71 | 15 ·23 | 0 ·16 | 13 32 13 ·0 | 96 ·1 | 2 ·3 | 6 ·0 |
| 10 ·20 | 15 ·23 | 0 ·16 | 14 10 17 ·8 | 94 ·3 | 2 ·3 | 6 ·0 |
| 15 ·70 | 15 ·23 | 0 ·16 | 14 47 37 ·5 | 92 ·4 | 2 ·3 | 6 ·0 |
| 21 ·30 | 15 ·24 | 0 ·16 | 15 24 10 ·7 | 90 ·4 | 2 ·3 | 6 ·0 |
| -- -- | 15 ·25 | 0 ·16 | 15 59 56 ·1 | 88 ·4 | 2 ·3 | 6 ·0 |
| | | 0 ·16 | 16 34 52 ·6 | 86 ·3 | 2 ·3 | 6 ·0 |
| | | 0 ·16 | 17 8 58 ·8 | 84 ·2 | 2 ·3 | 6 ·1 |
| | | | 17 42 13 ·5 | 82 ·0 | 2 ·3 | 6 ·1 |
| | | | 8 14 35 ·1 | — 79 ·8 | 2 ·3 | 6 ·1 |

# NOVEMBER, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 15 2 48·61 | S. 18 14 5·3 | 0·1490054 | 0 22·5 | 250 14 48·0 | S. 2 50 28·2 | 9·668 |
| 2 | 15 8 56·20 | 18 45 30·9 | ·1473319 | 0 24·7 | 252 59 28·5 | 3 8 43·4 | ·668 |
| 3 | 15 15 4·44 | 19 16 1·2 | ·1454868 | 0 26·9 | 255 44 7·1 | 3 26 31·9 | ·669 |
| 4 | 15 21 13·36 | 19 45 34·8 | ·1434669 | 0 29·1 | 258 28 55·8 | 3 43 52·3 | ·668 |
| 5 | 15 27 22·97 | 20 14 10·6 | ·1412700 | 0 31·3 | 261 14 7·3 | 4 0 43·6 | ·668 |
| 6 | 15 33 33·25 | 20 41 47·0 | ·1388917 | 0 33·5 | 263 59 53·1 | 4 17 4·4 | ·667 |
| 7 | 15 39 44·19 | 21 8 22·6 | ·1363286 | 0 35·8 | 266 46 26·2 | 4 32 53·1 | ·666 |
| 8 | 15 45 55·74 | 21 33 56·0 | ·1335751 | 0 38·0 | 269 33 58·6 | 4 48 8·2 | ·663 |
| 9 | 15 52 7·83 | 21 58 25·8 | ·1306264 | 0 40·3 | 272 22 43·3 | 5 2 48·0 | ·663 |
| 10 | 15 58 20·37 | 22 21 50·5 | ·1274766 | 0 42·6 | 275 12 53·1 | 5 16 50·4 | ·661 |
| 11 | 16 4 33·25 | 22 44 8·5 | ·1241199 | 0 44·9 | 278 4 41·5 | 5 30 13·3 | ·659 |
| 12 | 16 10 46·29 | 23 5 18·5 | ·1205480 | 0 47·1 | 280 58 21·5 | 5 42 54·4 | ·657 |
| 13 | 16 16 59·34 | 23 25 18·4 | ·1167541 | 0 49·4 | 283 54 7·3 | 5 54 50·9 | ·655 |
| 14 | 16 23 12·16 | 23 44 7·4 | ·1127292 | 0 51·7 | 286 52 13·4 | 6 6 0·2 | ·652 |
| 15 | 16 29 24·48 | 24 1 43·4 | ·1084652 | 0 53·9 | 289 52 54·5 | 6 16 19·1 | ·649 |
| 16 | 16 35 36·02 | 24 18 4·9 | ·1039512 | 0 56·2 | 292 56 26·4 | 6 25 43·9 | ·64 |
| 17 | 16 41 46·42 | 24 33 10·6 | ·0991774 | 0 58·4 | 296 3 5·0 | 6 34 10·9 | ·64 |
| 18 | 16 47 55·25 | 24 46 58·7 | ·0941322 | 1 0·6 | 299 13 6·9 | 6 41 35·9 | ·63 |
| 19 | 16 54 2·04 | 24 59 27·9 | ·0888042 | 1 2·8 | 302 26 49·4 | 6 47 54·3 | ·6 |
| 20 | 17 0 6·23 | 25 10 36·7 | ·0831800 | 1 4·9 | 305 44 30·6 | 6 53 0·9 | ·6 |
| 21 | 17 6 7·21 | 25 20 23·6 | ·0772469 | 1 7·0 | 309 6 29·3 | 6 56 50·2 | ·6 |
| 22 | 17 12 4·24 | 25 28 47·6 | ·0709910 | 1 9·0 | 312 33 4·7 | 6 59 16·4 | ·6 |
| 23 | 17 17 56·47 | 25 35 47·2 | ·0643972 | 1 10·9 | 316 4 37·1 | 7 0 12·8 | ·6 |
| 24 | 17 23 42·98 | 25 41 21·6 | ·0574510 | 1 12·8 | 319 41 27·4 | 6 59 32·6 | ·6 |
| 25 | 17 29 22·68 | 25 45 29·9 | ·0501375 | 1 14·5 | 323 23 56·6 | 6 57 8·3 | ·6 |
| 26 | 17 34 54·33 | 25 48 11·3 | ·0424416 | 1 16·1 | 327 12 26·9 | 6 52 52·1 | ·5 |
| 27 | 17 40 16·55 | 25 49 25·4 | ·0343495 | 1 17·5 | 331 7 20·5 | 6 46 35·6 | ·5 |
| 28 | 17 45 27·74 | 25 49 12·0 | ·0258485 | 1 18·7 | 335 9 0·1 | 6 38 10·4 | ·5 |
| 29 | 17 50 26·12 | 25 47 31·4 | ·0169274 | 1 19·7 | 339 17 48·1 | 6 27 27·7 | ·5 |
| 30 | 17 55 9·66 | 25 44 23·9 | 0·0075776 | 1 20·5 | 343 34 6·7 | 6 14 18·9 | ·5 |
| 31 | 17 59 36·12 | S. 25 39 50·8 | 9·9977959 | 1 21·0 | 347 58 17·0 | S. 5 58 35·5 | |

# NOVEMBER, 1839.

At Transit over the Meridian of Greenwich.

| Month. | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|---|
| | h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 1 | 15 2 54 ·35 | +15 ·33 | 0 ·16 | S. 18 14 35 ·1 | −79 ·8 | 2 ·3 | 6 ·1 |
| 2 | 15 9 2 ·50 | 15 ·35 | 0 ·16 | 18 46 2 ·8 | 77 ·5 | 2 ·3 | 6 ·1 |
| 3 | 15 15 11 ·31 | 15 ·38 | 0 ·16 | 19 16 34 ·8 | 75 ·2 | 2 ·3 | 6 ·2 |
| 4 | 15 21 20 ·81 | 15 ·41 | 0 ·16 | 19 46 10 ·0 | 72 ·8 | 2 ·3 | 6 ·2 |
| 5 | 15 27 31 ·01 | 15 ·44 | 0 ·16 | 20 14 47 ·2 | 70 ·3 | 2 ·3 | 6 ·2 |
| 6 | 15 33 41 ·88 | 15 ·47 | 0 ·16 | 20 42 24 ·9 | 67 ·8 | 2 ·3 | 6 ·2 |
| 7 | 15 39 53 ·41 | 15 ·49 | 0 ·17 | 21 9 1 ·5 | 65 ·2 | 2 ·4 | 6 ·3 |
| 8 | 15 46 5 ·56 | 15 ·52 | 0 ·17 | 21 34 35 ·6 | 62 ·6 | 2 ·4 | 6 ·3 |
| 9 | 15 52 18 ·24 | 15 ·54 | 0 ·17 | 21 59 6 ·0 | 59 ·9 | 2 ·4 | 6 ·4 |
| 10 | 15 58 31 ·39 | 15 ·56 | 0 ·17 | 22 22 31 ·0 | 57 ·2 | 2 ·4 | 6 ·4 |
| 11 | 16 4 44 ·87 | 15 ·57 | 0 ·18 | 22 44 49 ·0 | 54 ·4 | 2 ·5 | 6 ·5 |
| 12 | 16 10 58 ·50 | 15 ·57 | 0 ·18 | 23 5 58 ·9 | 51 ·5 | 2 ·5 | 6 ·5 |
| 13 | 16 17 12 ·13 | 15 ·56 | 0 ·18 | 23 25 58 ·3 | 48 ·5 | 2 ·5 | 6 ·6 |
| 14 | 16 23 25 ·53 | 15 ·55 | 0 ·18 | 23 44 46 ·6 | 45 ·5 | 2 ·5 | 6 ·6 |
| 15 | 16 29 38 ·42 | 15 ·52 | 0 ·18 | 24 2 21 ·6 | 42 ·4 | 2 ·5 | 6 ·7 |
| 16 | 16 35 50 ·50 | 15 ·48 | 0 ·19 | 24 18 41 ·6 | 39 ·3 | 2 ·6 | 6 ·8 |
| 17 | 16 42 1 ·41 | 15 ·42 | 0 ·19 | 24 33 45 ·7 | 36 ·1 | 2 ·6 | 6 ·8 |
| 18 | 16 48 10 ·74 | 15 ·35 | 0 ·19 | 24 47 31 ·8 | 32 ·8 | 2 ·6 | 6 ·9 |
| 19 | 16 54 17 ·98 | 15 ·25 | 0 ·19 | 24 59 58 ·8 | 29 ·5 | 2 ·6 | 7 ·0 |
| 20 | 17 0 22 ·59 | 15 ·13 | 0 ·20 | 25 11 5 ·0 | 26 ·1 | 2 ·7 | 7 ·1 |
| 21 | 17 6 23 ·92 | 14 ·98 | 0 ·20 | 25 20 49 ·0 | 22 ·6 | 2 ·7 | 7 ·2 |
| 22 | 17 12 21 ·24 | 14 ·79 | 0 ·20 | 25 29 9 ·7 | 19 ·1 | 2 ·8 | 7 ·3 |
| 23 | 17 18 13 ·69 | 14 ·57 | 0 ·20 | 25 36 5 ·7 | 15 ·6 | 2 ·8 | 7 ·4 |
| 24 | 17 24 0 ·33 | 14 ·31 | 0 ·20 | 25 41 36 ·2 | 12 ·0 | 2 ·8 | 7 ·5 |
| 25 | 17 29 40 ·04 | 13 ·99 | 0 ·21 | 25 45 40 ·3 | 8 ·4 | 2 ·9 | 7 ·7 |
| 26 | 17 35 11 ·60 | 13 ·63 | 0 ·21 | 25 48 17 ·4 | 4 ·7 | 2 ·9 | 7 ·8 |
| 27 | 17 40 33 ·59 | 13 ·20 | 0 ·22 | 25 49 26 ·9 | − 1 ·1 | 3 ·0 | 7 ·9 |
| 28 | 17 45 44 ·41 | 12 ·69 | 0 ·23 | 25 49 8 ·8 | + 2 ·6 | 3 ·1 | 8 ·1 |
| 29 | 17 50 42 ·24 | 12 ·11 | 0 ·23 | 25 47 23 ·3 | 6 ·2 | 3 ·1 | 8 ·3 |
| 30 | 17 55 25 ·04 | 11 ·44 | 0 ·23 | 25 44 10 ·9 | 9 ·8 | 3 ·2 | 8 ·4 |
| | | [illegible] ·67 | 0 ·23 | S. 25 39 32 ·9 | +13 ·4 | 3 ·2 | 8 ·6 |

# DECEMBER, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. of Rad. Ve |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 17 59 36·12 | S. 25 39 50·8 | 9·9977959 | 1 21·0 | 347 58 17·0 | S. 5 58 35·5 | 9·5616 |
| 2 | 18 3 42·96 | 25 33 53·1 | ·9875836 | 1 21·1 | 352 30 39·3 | 5 40 9·9 | ·5577 |
| 3 | 18 7 27·36 | 25 26 32·6 | ·9769505 | 1 20·9 | 357 11 32·1 | 5 18 55·2 | ·5508 |
| 4 | 18 10 46·34 | 25 17 51·7 | ·9659168 | 1 20·3 | 2 1 10·4 | 4 54 46·2 | ·5439 |
| 5 | 18 13 36·49 | 25 7 53·2 | ·9545152 | 1 19·1 | 6 59 46·9 | 4 27 39·7 | ·5370 |
| 6 | 18 15 54·31 | 24 56 39·9 | ·9427978 | 1 17·4 | 12 7 28·7 | 3 57 35·5 | ·5303 |
| 7 | 18 17 36·12 | 24 44 15·4 | ·9308341 | 1 15·2 | 17 24 18·0 | 3 24 36·6 | ·5238 |
| 8 | 18 18 38·25 | 24 30 42·9 | ·9187199 | 1 12·2 | 22 50 11·0 | 2 48 50·3 | ·5175 |
| 9 | 18 18 57·16 | 24 16 6·4 | ·9065801 | 1 8·6 | 28 24 55·4 | 2 10 29·1 | ·5117 |
| 10 | 18 18 29·75 | 24 0 29·5 | ·8945718 | 1 4·2 | 34 8 10·4 | 1 29 50·5 | ·5063 |
| 11 | 18 17 13·63 | 23 43 56·0 | ·8828855 | 0 58·9 | 39 59 25·7 | 0 47 18·0 | ·5014 |
| 12 | 18 15 7·52 | 23 26 29·9 | ·8717453 | 0 52·9 | 45 58 0·1 | S. 0 3 21·1 | ·4972 |
| 13 | 18 12 11·65 | 23 8 16·2 | ·8614028 | 0 46·0 | 52 3 2·3 | N. 0 41 25·4 | ·4937 |
| 14 | 18 8 28·17 | 22 49 21·2 | ·8521276 | 0 38·4 | 58 13 30·0 | 1 26 22·3 | ·4909 |
| 15 | 18 4 1·43 | 22 29 53·5 | ·8441914 | 0 30·0 | 64 28 12·4 | 2 10 47·0 | ·4890 |
| 16 | 17 58 58·12 | 22 10 5·6 | ·8378501 | 0 21·1 | 70 45 49·3 | 2 53 55·7 | ·488 |
| 17 | 17 53 27·07 | 21 50 13·9 | ·8333199 | 0 11·7 | 77 4 54·9 | 3 35 4·9 | ·487 |
| 18 | 17 47 38·97 | 21 30 39·8 | ·8307487 | {0 2·0 / 23 52·2} | 83 23 58·6 | 4 13 34·3 | ·488 |
| 19 | 17 41 45·43 | 21 11 48·5 | ·8302156 | 23 42·5 | 89 41 29·9 | 4 48 47·8 | ·49 |
| 20 | 17 35 58·27 | 20 54 7·4 | ·8317063 | 23 33·2 | 95 55 59·5 | 5 20 15·9 | ·49 |
| 21 | 17 30 28·54 | 20 38 4·2 | ·8351246 | 23 24·2 | 102 6 4·2 | 5 47 36·5 | ·49 |
| 22 | 17 25 25·78 | 20 24 3·5 | ·8403019 | 23 15·8 | 108 10 27·3 | 6 10 35·4 | ·50 |
| 23 | 17 20 57·59 | 20 12 25·3 | ·8470181 | 23 8·1 | 114 8 1·5 | 6 29 6·2 | ·50 |
| 24 | 17 17 9·31 | 20 3 23·1 | ·8550227 | 23 1·1 | 119 57 51·2 | 6 43 9·9 | ·51 |
| 25 | 17 14 4·18 | 19 57 3·4 | ·8640568 | 22 54·8 | 125 39 11·1 | 6 52 53·5 | ·51 |
| 26 | 17 11 43·55 | 19 53 26·1 | ·8738697 | 22 49·2 | 131 11 27·9 | 6 58 29·3 | ·52 |
| 27 | 17 10 7·23 | 19 52 25·2 | ·8842325 | 22 44·4 | 136 34 19·9 | 7 0 13·2 | ·52 |
| 28 | 17 9 13·83 | 19 53 50·1 | ·8949416 | 22 40·2 | 141 47 34·9 | 6 58 23·7 | ·53 |
| 29 | 17 9 1·27 | 19 57 27·4 | ·9058267 | 22 36·7 | 146 51 9·9 | 6 53 20·7 | ·54 |
| 30 | 17 9 26·89 | | | 22 33·7 | 151 45 9·3 | 6 45 24·5 | ·54 |
| 31 | 17 10 27·82 | | | 1·3 | 156 29 43·7 | 6 34 55·6 | ·55 |
| 32 | 17 12 1·1 | | | | 5 8·8 | N. 6 22 13·1 | 9·56 |

# DECEMBER, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 17 59 50 ·56 | +10 ·67 | 0 ·23 | S. 25 39 32 ·9 | +13 ·4 | 3 ·2 | 8 ·6 |
| 18 3 56 ·24 | 9 ·78 | 0 ·24 | 25 33 30 ·5 | 16 ·8 | 3 ·3 | 8 ·8 |
| 18 7 39 ·26 | 8 ·78 | 0 ·25 | 25 26 5 ·4 | 20 ·2 | 3 ·4 | 9 ·1 |
| 18 10 56 ·62 | 7 ·64 | 0 ·26 | 25 17 20 ·3 | 23 ·5 | 3 ·5 | 9 ·3 |
| 18 13 44 ·94 | 6 ·36 | 0 ·26 | 25 7 18 ·1 | 26 ·7 | 3 ·6 | 9 ·5 |
| 18 16 0 ·75 | 4 ·93 | 0 ·27 | 24 56 1 ·7 | 29 ·7 | 3 ·7 | 9 ·8 |
| 18 17 40 ·39 | 3 ·35 | 0 ·28 | 24 43 34 ·6 | 32 ·6 | 3 ·8 | 10 ·1 |
| 18 18 40 ·27 | + 1 ·62 | 0 ·29 | 24 30 0 ·4 | 35 ·3 | 3 ·9 | 10 ·4 |
| 18 18 56 ·93 | — 0 ·25 | 0 ·30 | 24 15 23 ·2 | 37 ·8 | 4 ·0 | 10 ·7 |
| 18 18 27 ·40 | 2 ·23 | 0 ·31 | 23 59 46 ·4 | 40 ·2 | 4 ·2 | 11 ·0 |
| 18 17 9 ·45 | 4 ·28 | 0 ·32 | 23 43 14 ·2 | 42 ·4 | 4 ·3 | 11 ·3 |
| 18 15 1 ·93 | 6 ·35 | 0 ·32 | 23 25 50 ·5 | 44 ·5 | 4 ·4 | 11 ·6 |
| 18 12 5 ·20 | 8 ·36 | 0 ·33 | 23 7 40 ·5 | 46 ·3 | 4 ·5 | 11 ·8 |
| 18 8 21 ·57 | 10 ·24 | 0 ·33 | 22 48 50 ·4 | 47 ·8 | 4 ·6 | 12 ·1 |
| 18 3 55 ·44 | 11 ·89 | 0 ·33 | 22 29 28 ·8 | 48 ·9 | 4 ·6 | 12 ·3 |
| 17 58 53 ·44 | 13 ·22 | 0 ·34 | 22 9 48 ·1 | 49 ·4 | 4 ·7 | 12 ·5 |
| 17 53 24 ·30 | 14 ·14 | 0 ·34 | 21 50 4 ·3 | 49 ·1 | 4 ·8 | 12 ·6 |
| {17 47 38 ·49 / 17 41 47 ·27} | {14 ·60 / 14 ·59} | {0 ·34 / 0 ·34} | {21 30 38 ·3 / 21 11 54 ·6} | {47 ·9 / 45 ·6} | {4 ·8 / 4 ·9} | {12 ·7 / 12 ·7} |
| 17 36 2 ·41 | 14 ·09 | 0 ·34 | 20 54 19 ·8 | 42 ·1 | 4 ·8 | 12 ·6 |
| 17 30 34 ·49 | 13 ·17 | 0 ·34 | 20 38 20 ·8 | 37 ·6 | 4 ·7 | 12 ·5 |
| 17 25 32 ·92 | 11 ·90 | 0 ·33 | 20 24 22 ·7 | 32 ·1 | 4 ·7 | 12 ·4 |
| 17 21 5 ·26 | 10 ·37 | 0 ·33 | 20 12 44 ·5 | 26 ·0 | 4 ·6 | 12 ·2 |
| 17 17 16 ·80 | 8 ·65 | 0 ·32 | 20 3 39 ·8 | 19 ·4 | 4 ·5 | 12 ·0 |
| 17 14 10 ·87 | 6 ·84 | 0 ·31 | 19 57 15 ·7 | 12 ·6 | 4 ·4 | 11 ·7 |
| 17 11 48 ·94 | 4 ·99 | 0 ·30 | 19 53 32 ·6 | + 6 ·0 | 4 ·3 | 11 ·5 |
| 17 10 10 ·92 | 3 ·18 | 0 ·29 | 19 52 24 ·7 | — 0 ·3 | 4 ·2 | 11 ·2 |
| 17 9 15 ·57 | — 1 ·44 | 0 ·29 | 19 53 42 ·1 | 6 ·1 | 4 ·1 | 10 ·9 |
| 17 9 0 ·92 | + 0 ·20 | 0 ·28 | 19 57 12 ·1 | 11 ·3 | 4 ·0 | 10 ·7 |
| 17 9 24 ·40 | 1 ·73 | 0 ·27 | 20 2 39 ·1 | 15 ·8 | 3 ·9 | 10 ·4 |
| 17 10 23 ·21 | 3 ·15 | 0 ·26 | 20 9 47 ·3 | 19 ·7 | 3 ·8 | 10 ·1 |
| 17 11 54 ·49 | 4 ·44 | 0 ·26 | 20 18 20 ·2 | 22 ·9 | 3 ·7 | 9 ·9 |
| 17 13 55 ·40 | + 5 ·62 | 0 ·26 | S. 20 28 2 ·0 | —25 ·5 | 3 ·7 | 9 ·7 |

# JANUARY, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. of Rad. Vect. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 19 0 13·37 | S. 23 32 4·3 | 0·2322555 | 0 18·4 | 288 16 57·6 | S. 1 51 12·1 | 9·8621099 |
| 2 | 19 5 41·46 | 23 25 55·0 | ·2321171 | 0 19·9 | 289 51 48·0 | 1 55 51·8 | ·8621379 |
| 3 | 19 11 8·99 | 23 19 2·3 | ·2319691 | 0 21·4 | 291 26 38·3 | 2 0 26·2 | ·8621638 |
| 4 | 19 16 35·89 | 23 11 26·5 | ·2318114 | 0 22·9 | 293 1 28·3 | 2 4 55·1 | ·8621875 |
| 5 | 19 22 2·12 | 23 3 7·9 | ·2316440 | 0 24·4 | 294 36 18·3 | 2 9 18·2 | ·8622090 |
| 6 | 19 27 27·62 | 22 54 6·9 | ·2314668 | 0 25·9 | 296 11 8·3 | 2 13 35·4 | ·8622283 |
| 7 | 19 32 52·33 | 22 44 23·7 | ·2312797 | 0 27·4 | 297 45 58·3 | 2 17 46·5 | ·8622454 |
| 8 | 19 38 16·22 | 22 33 58·8 | ·2310827 | 0 28·8 | 299 20 48·5 | 2 21 51·3 | ·8622602 |
| 9 | 19 43 39·25 | 22 22 52·7 | ·2308757 | 0 30·2 | 300 55 38·9 | 2 25 49·6 | ·8622725 |
| 10 | 19 49 1·35 | 22 11 5·8 | ·2306585 | 0 31·7 | 302 30 29·6 | 2 29 41·3 | ·8622830 |
| 11 | 19 54 22·50 | 21 58 38·7 | ·2304312 | 0 33·1 | 304 5 20·6 | 2 33 26·1 | ·8622911 |
| 12 | 19 59 42·65 | 21 45 31·8 | ·2301936 | 0 34·5 | 305 40 12·0 | 2 37 3·9 | ·8622968 |
| 13 | 20 5 1·75 | 21 31 45·8 | ·2299456 | 0 35·9 | 307 15 3·9 | 2 40 34·5 | ·8623003 |
| 14 | 20 10 19·78 | 21 17 21·0 | ·2296872 | 0 37·2 | 308 49 56·2 | 2 43 57·9 | ·8623015 |
| 15 | 20 15 36·69 | 21 2 18·2 | ·2294183 | 0 38·5 | 310 24 49·0 | 2 47 13·7 | ·8623004 |
| 16 | 20 20 52·45 | 20 46 37·8 | ·2291388 | 0 39·9 | 311 59 42·4 | 2 50 21·9 | ·8622971 |
| 17 | 20 26 7·03 | 20 30 20·6 | ·2288488 | 0 41·2 | 313 34 36·3 | 2 53 22·3 | ·8622915 |
| 18 | 20 31 20·42 | 20 13 27·3 | ·2285483 | 0 42·5 | 315 9 30·9 | 2 56 14·8 | ·8622836 |
| 19 | 20 36 32·57 | 19 55 58·4 | ·2282372 | 0 43·7 | 316 44 26·1 | 2 58 59·3 | ·8622734 |
| 20 | 20 41 43·49 | 19 37 54·8 | ·2279156 | 0 44·9 | 318 19 22·1 | 3 1 35·6 | ·8622610 |
| 21 | 20 46 53·14 | 19 19 17·1 | ·2275834 | 0 46·1 | 319 54 18·8 | 3 4 3·6 | ·8622464 |
| 22 | 20 52 1·53 | 19 0 6·0 | ·2272408 | 0 47·4 | 321 29 16·5 | 3 6 23·3 | ·8622295 |
| 23 | 20 57 8·63 | 18 40 22·3 | ·2268876 | 0 48·6 | 323 4 15·0 | 3 8 34·4 | ·8622104 |
| 24 | 21 2 14·45 | 18 20 6·6 | ·2265239 | 0 49·8 | 324 39 14·5 | 3 10 36·9 | ·8621891 |
| 25 | 21 7 18·97 | 17 59 19·6 | ·2261498 | 0 50·9 | 326 14 15·1 | 3 12 30·7 | ·8621653 |
| 26 | 21 12 22·19 | 17 38 2·2 | ·2257652 | 0 52·0 | 327 49 16·6 | 3 14 15·7 | ·8621398 |
| 27 | 21 17 24·13 | 17 16 15·0 | ·2253701 | 0 53·1 | 329 24 19·2 | 3 15 51·9 | ·8621120 |
| 28 | 21 22 24·78 | 16 53 58·9 | ·2249646 | 0 54·1 | 330 59 22·8 | 3 17 19·1 | ·8620819 |
| 29 | 21 27 24·14 | 16 31 14·6 | ·2245487 | 0 55·1 | 332 34 27·4 | 3 18 37·3 | ·8620[illegible] |
| 30 | 21 32 22·22 | 16 8 2·8 | ·2241222 | 0 56·1 | 334 9 33·1 | 3 19 46·4 | ·8620[illegible] |
| 31 | 21 37 19·04 | 15 44 24·3 | ·2236853 | 0 57·2 | 335 44 39·9 | 3 20 46·3 | ·8619[illegible] |
| 32 | 21 42 14·61 | S. 15 20 19·9 | 0·2232378 | 0 58·2 | 337 19 47·8 | S. 3 21 37·1 | 9·8619[illegible] |

# JANUARY, 1839.

At Transit over the Meridian of Greenwich.

| *parent* ight ension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 0 17·57 | +13·70 | 0·35 | S. 23 31 59·8 | +14·5 | 4·8 | 5·0 |
| 5 46·01 | 13·67 | 0·35 | 23 25 49·6 | 16·3 | 4·8 | 5·0 |
| 1 13·88 | 13·65 | 0·35 | 23 18 55·9 | 18·1 | 4·8 | 5·0 |
| 6 41·10 | 13·62 | 0·35 | 23 11 18·9 | 19·9 | 4·8 | 5·0 |
| 2 7·66 | 13·59 | 0·35 | 23 2 59·1 | 21·7 | 4·8 | 5·0 |
| 7 33·48 | 13·56 | 0·35 | 22 53 56·8 | 23·5 | 4·8 | 5·0 |
| 2 58·50 | 13·53 | 0·35 | 22 44 12·2 | 25·2 | 4·8 | 5·0 |
| 8 22·71 | 13·49 | 0·35 | 22 33 45·9 | 27·0 | 4·9 | 5·0 |
| 3 46·05 | 13·45 | 0·35 | 22 22 38·3 | 28·7 | 4·9 | 5·0 |
| 9 8·44 | 13·41 | 0·35 | 22 10 49·7 | 30·4 | 4·9 | 5·0 |
| 4 29·89 | 13·37 | 0·35 | 21 58 21·0 | 32·0 | 4·9 | 5·0 |
| 9 50·33 | 13·33 | 0·35 | 21 45 12·4 | 33·7 | 4·9 | 5·0 |
| 5 9·70 | 13·28 | 0·35 | 21 31 24·6 | 35·3 | 4·9 | 5·1 |
| 0 28·00 | 13·24 | 0·35 | 21 16 58·0 | 36·9 | 4·9 | 5·1 |
| 5 45·17 | 13·19 | 0·35 | 21 1 53·4 | 38·5 | 4·9 | 5·1 |
| 1 1·19 | 13·14 | 0·35 | 20 46 11·1 | 40·0 | 4·9 | 5·1 |
| 6 16·03 | 13·09 | 0·35 | 20 29 51·9 | 41·5 | 4·9 | 5·1 |
| 1 29·67 | 13·04 | 0·34 | 20 12 56·6 | 43·0 | 4·9 | 5·1 |
| 6 42·05 | 12·99 | 0·34 | 19 55 25·8 | 44·5 | 4·9 | 5·1 |
| 1 53·20 | 12·94 | 0·34 | 19 37 20·2 | 45·9 | 4·9 | 5·1 |
| 7 3·07 | 12·88 | 0·34 | 19 18 40·5 | 47·3 | 4·9 | 5·1 |
| 2 11·67 | 12·83 | 0·34 | 18 59 27·4 | 48·7 | 4·9 | 5·1 |
| 7 18·98 | 12·78 | 0·34 | 18 39 41·7 | 50·1 | 4·9 | 5·1 |
| 2 25·00 | 12·72 | 0·34 | 18 19 24·0 | 51·4 | 4·9 | 5·1 |
| 7 29·71 | 12·67 | 0·34 | 17 58 34·9 | 52·7 | 4·9 | 5·1 |
| 2 33·12 | 12·62 | 0·34 | 17 37 15·5 | 53·9 | 4·9 | 5·1 |
| 7 35·24 | 12·56 | 0·34 | 17 15 26·3 | 55·1 | 4·9 | 5·1 |
| 6·07 | 12·51 | 0·34 | 16 53 8·1 | 56·3 | 4·9 | 5·1 |
| [illegible] | 12·45 | 0·34 | 16 30 21·8 | 57·5 | 4·9 | 5·1 |
| [illegible] | 12·40 | 0·34 | 16 7 8·0 | 58·6 | 4·9 | 5·1 |
| | 12·35 | 0·34 | 15 43 27·4 | 59·6 | 4·9 | 5·1 |
| | 30 | [illegible] | 5 19 21·0 | +60·6 | 4·9 | 5·1 |

# FEBRUARY, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *No* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 21 42 14·61 | S. 15 20 19·9 | 0·2232378 | 0 58·2 | 337 19 47·8 | S. 3 21 37·1 | 9·861 |
| 2 | 21 47 8·94 | 14 55 50·3 | ·2227796 | 0 59·2 | 338 54 56·9 | 3 22 18·6 | ·861 |
| 3 | 21 52 2·06 | 14 30 56·4 | ·2223105 | 1 0·1 | 340 30 7·2 | 3 22 50·8 | ·861 |
| 4 | 21 56 53·98 | 14 5 38·7 | ·2218306 | 1 1·0 | 342 5 18·7 | 3 23 13·8 | ·861 |
| 5 | 22 1 44·73 | 13 39 58·1 | ·2213396 | 1 1·9 | 343 40 31·5 | 3 23 27·4 | ·861 |
| 6 | 22 6 34·33 | 13 13 55·5 | ·2208375 | 1 2·9 | 345 15 45·6 | 3 23 31·7 | ·861 |
| 7 | 22 11 22·81 | 12 47 31·4 | ·2203241 | 1 3·7 | 346 51 1·0 | 3 23 26·6 | ·861 |
| 8 | 22 16 10·18 | 12 20 46·8 | ·2197993 | 1 4·5 | 348 26 17·7 | 3 23 12·2 | ·861 |
| 9 | 22 20 56·48 | 11 53 42·4 | ·2192629 | 1 5·4 | 350 1 35·8 | 3 22 48·4 | ·861 |
| 10 | 22 25 41·73 | 11 26 19·0 | ·2187147 | 1 6·2 | 351 36 55·2 | 3 22 15·3 | ·861 |
| 11 | 22 30 25·95 | 10 58 37·4 | ·2181546 | 1 7·0 | 353 12 16·0 | 3 21 32·9 | ·861 |
| 12 | 22 35 9·18 | 10 30 38·5 | ·2175826 | 1 7·7 | 354 47 38·1 | 3 20 41·2 | ·861 |
| 13 | 22 39 51·43 | 10 2 23·0 | ·2169983 | 1 8·5 | 356 23 1·6 | 3 19 40·2 | ·861 |
| 14 | 22 44 32·74 | 9 33 51·8 | ·2164016 | 1 9·3 | 357 58 26·4 | 3 18 30·0 | ·861 |
| 15 | 22 49 13·14 | 9 5 5·6 | ·2157926 | 1 10·0 | 359 33 52·5 | 3 17 10·6 | ·861 |
| 16 | 22 53 52·67 | 8 36 5·1 | ·2151710 | 1 10·7 | 1 9 20·1 | 3 15 42·1 | ·861 |
| 17 | 22 58 31·36 | 8 6 51·2 | ·2145369 | 1 11·4 | 2 44 49·1 | 3 14 4·5 | ·861 |
| 18 | 23 3 9·25 | 7 37 24·5 | ·2138901 | 1 12·1 | 4 20 19·5 | 3 12 18·0 | ·861 |
| 19 | 23 7 46·37 | 7 7 46·0 | ·2132307 | 1 12·8 | 5 55 51·5 | 3 10 22·4 | ·860 |
| 20 | 23 12 22·76 | 6 37 56·4 | ·2125585 | 1 13·5 | 7 31 24·9 | 3 8 18·1 | ·860 |
| 21 | 23 16 58·46 | 6 7 56·5 | ·2118735 | 1 14·1 | 9 6 59·9 | 3 6 5·0 | ·860 |
| 22 | 23 21 33·51 | 5 37 46·9 | ·2111757 | 1 14·7 | 10 42 36·4 | 3 3 43·3 | ·860 |
| 23 | 23 26 7·93 | 5 7 28·6 | ·2104650 | 1 15·3 | 12 18 14·4 | 3 1 13·0 | ·860 |
| 24 | 23 30 41·78 | 4 37 2·3 | ·2097415 | 1 16·0 | 13 53 53·9 | 2 58 34·2 | ·860 |
| 25 | 23 35 15·09 | 4 6 28·7 | ·2090050 | 1 16·6 | 15 29 34·8 | 2 55 47·1 | ·860 |
| 26 | 23 39 47·90 | 3 35 48·6 | ·2082554 | 1 17·2 | 17 5 17·2 | 2 52 51·8 | ·860 |
| 27 | 23 44 20·26 | 3 5 2·6 | ·2074929 | 1 17·8 | 18 41 1·1 | 2 49 48·3 | ·860 |
| 28 | 23 48 52·22 | 2 34 11·6 | ·2067171 | 1 18·4 | 20 16 46·6 | 2 46 36·9 | ·860 |
| 29 | 23 53 23·81 | S. 2 3 16·2 | 0·2059283 | 1 19·0 | 21 52 33·5 | S. 2 43 17·8 | 9·860 |

# FEBRUARY, 1839.

At Transit over the Meridian of Greenwich.

| Day of the Month. | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|---|
| | h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 1 | 21 42 26 ·52 | +12 ·30 | 0 ·34 | S. 15 19 21 ·0 | +60 ·6 | 4 ·9 | 5 ·1 |
| 2 | 21 47 20 ·99 | 12 ·24 | 0 ·34 | 14 54 49 ·4 | 61 ·8 | 4 ·9 | 5 ·1 |
| 3 | 21 52 14 ·26 | 12 ·19 | 0 ·34 | 14 29 53 ·4 | 62 ·8 | 5 ·0 | 5 ·2 |
| 4 | 21 57 6 ·31 | 12 ·14 | 0 ·34 | 14 4 33 ·8 | 63 ·8 | 5 ·0 | 5 ·2 |
| 5 | 22 1 57 ·19 | 12 ·10 | 0 ·34 | 13 38 51 ·3 | 64 ·6 | 5 ·0 | 5 ·2 |
| 6 | 22 6 46 ·93 | 12 ·05 | 0 ·34 | 13 12 46 ·7 | 65 ·6 | 5 ·0 | 5 ·2 |
| 7 | 22 11 35 ·53 | 12 ·00 | 0 ·34 | 12 46 20 ·8 | 66 ·5 | 5 ·0 | 5 ·2 |
| 8 | 22 16 23 ·03 | 11 ·96 | 0 ·34 | 12 19 34 ·4 | 67 ·3 | 5 ·0 | 5 ·2 |
| 9 | 22 21 9 ·45 | 11 ·91 | 0 ·34 | 11 52 28 ·2 | 68 ·2 | 5 ·0 | 5 ·2 |
| 10 | 22 25 54 ·81 | 11 ·87 | 0 ·34 | 11 25 3 ·1 | 68 ·9 | 5 ·0 | 5 ·2 |
| 11 | 22 30 39 ·14 | 11 ·83 | 0 ·34 | 10 57 19 ·8 | 69 ·7 | 5 ·0 | 5 ·2 |
| 12 | 22 35 22 ·48 | 11 ·79 | 0 ·34 | 10 29 19 ·1 | 70 ·4 | 5 ·0 | 5 ·2 |
| 13 | 22 40 4 ·83 | 11 ·75 | 0 ·34 | 10 1 2 ·0 | 71 ·0 | 5 ·0 | 5 ·2 |
| 14 | 22 44 46 ·24 | 11 ·71 | 0 ·34 | 9 32 29 ·2 | 71 ·7 | 5 ·0 | 5 ·2 |
| 15 | 22 49 26 ·74 | 11 ·67 | 0 ·34 | 9 3 41 ·3 | 72 ·3 | 5 ·0 | 5 ·2 |
| 16 | 22 54 6 ·37 | 11 ·63 | 0 ·34 | 8 34 39 ·3 | 72 ·9 | 5 ·0 | 5 ·2 |
| 17 | 22 58 45 ·16 | 11 ·60 | 0 ·34 | 8 5 23 ·9 | 73 ·4 | 5 ·0 | 5 ·2 |
| 18 | 23 3 23 ·14 | 11 ·57 | 0 ·34 | 7 35 55 ·7 | 73 ·9 | 5 ·0 | 5 ·2 |
| 19 | 23 8 0 ·36 | 11 ·54 | 0 ·34 | 7 6 15 ·8 | 74 ·4 | 5 ·1 | 5 ·3 |
| 20 | 23 12 36 ·84 | 11 ·51 | 0 ·34 | 6 36 24 ·8 | 74 ·8 | 5 ·1 | 5 ·3 |
| 21 | 23 17 12 ·63 | 11 ·48 | 0 ·34 | 6 6 23 ·6 | 75 ·3 | 5 ·1 | 5 ·3 |
| 22 | 23 21 47 ·77 | 11 ·45 | 0 ·34 | 5 36 12 ·8 | 75 ·6 | 5 ·1 | 5 ·3 |
| 23 | 23 26 22 ·28 | 11 ·43 | 0 ·34 | 5 5 53 ·3 | 76 ·0 | 5 ·1 | 5 ·3 |
| 24 | 23 30 56 ·22 | 11 ·40 | 0 ·34 | 4 35 25 ·7 | 76 ·3 | 5 ·1 | 5 ·3 |
| 25 | 23 35 29 ·62 | 11 ·38 | 0 ·34 | 4 4 51 ·0 | 76 ·6 | 5 ·1 | 5 ·3 |
| 26 | 23 40 2 ·52 | 11 ·36 | 0 ·34 | 3 34 9 ·8 | 76 ·8 | 5 ·1 | 5 ·3 |
| 27 | 23 44 34 ·97 | 11 ·34 | 0 ·34 | 3 3 22 ·7 | 77 ·1 | 5 ·1 | 5 ·3 |
| 28 | 23 49 7 ·03 | 11 ·33 | 0 ·34 | 2 32 30 ·7 | 77 ·3 | 5 ·1 | 5 ·3 |
| 29 | 23 53 38 ·71 | +11 ·31 | 0 ·34 | S. 2 1 34 ·3 | +77 ·4 | 5 ·1 | 5 ·3 |

# MARCH, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. of Rad. Vect. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 23 53 23·81 | S. 2 3 16·2 | 0·2059283 | 1 19·0 | 21 52 33·5 | S. 2 43 17·8 | 9·8601940 |
| 2 | 23 57 55·08 | 1 32 17·3 | ·2051261 | 1 19·6 | 23 28 22·0 | 2 39 50·9 | ·8601144 |
| 3 | 0 2 26·07 | 1 1 15·4 | ·2043105 | 1 20·2 | 25 4 12·1 | 2 36 16·5 | ·8600342 |
| 4 | 0 6 56·84 | S. 0 30 11·3 | ·2034813 | 1 20·8 | 26 40 3·8 | 2 32 34·8 | ·8599534 |
| 5 | 0 11 27·43 | N. 0 0 54·3 | ·2026383 | 1 21·3 | 28 15 57·1 | 2 28 45·9 | ·8598721 |
| 6 | 0 15 57·87 | 0 32 0·6 | ·2017813 | 1 21·9 | 29 51 52·1 | 2 24 49·9 | ·8597903 |
| 7 | 0 20 28·23 | 1 3 6·9 | ·2009102 | 1 22·5 | 31 27 48·7 | 2 20 47·1 | ·8597081 |
| 8 | 0 24 58·52 | 1 34 12·5 | ·2000249 | 1 23·0 | 33 3 46·9 | 2 16 37·7 | ·8596257 |
| 9 | 0 29 28·81 | 2 5 16·6 | ·1991251 | 1 23·6 | 34 39 46·8 | 2 12 21·7 | ·8595429 |
| 10 | 0 33 59·14 | 2 36 18·6 | ·1982106 | 1 24·2 | 36 15 48·3 | 2 7 59·5 | ·8594600 |
| 11 | 0 38 29·54 | 3 7 17·6 | ·1972812 | 1 24·7 | 37 51 51·5 | 2 3 31·2 | ·8593769 |
| 12 | 0 43 0·04 | 3 38 13·0 | ·1963367 | 1 25·3 | 39 27 56·3 | 1 58 57·0 | ·8592938 |
| 13 | 0 47 30·71 | 4 9 4·0 | ·1953769 | 1 25·9 | 41 4 2·7 | 1 54 17·1 | ·8592107 |
| 14 | 0 52 1·57 | 4 39 49·8 | ·1944015 | 1 26·4 | 42 40 10·7 | 1 49 31·8 | ·8591277 |
| 15 | 0 56 32·67 | 5 10 29·6 | ·1934104 | 1 27·0 | 44 16 20·3 | 1 44 41·2 | ·8590448 |
| 16 | 1 1 4·04 | 5 41 2·8 | ·1924035 | 1 27·6 | 45 52 31·7 | 1 39 45·5 | ·8589621 |
| 17 | 1 5 35·73 | 6 11 28·5 | ·1913805 | 1 28·2 | 47 28 44·7 | 1 34 45·1 | ·8588797 |
| 18 | 1 10 7·77 | 6 41 46·1 | ·1903413 | 1 28·8 | 49 4 59·5 | 1 29 40·1 | ·8587976 |
| 19 | 1 14 40·20 | 7 11 54·7 | ·1892857 | 1 29·4 | 50 41 16·1 | 1 24 30·8 | ·8587159 |
| 20 | 1 19 13·06 | 7 41 53·7 | ·1882137 | 1 30·0 | 52 17 34·5 | 1 19 17·4 | ·8586347 |
| 21 | 1 23 46·39 | 8 11 42·3 | ·1871250 | 1 30·6 | 53 53 54·7 | 1 14 0·1 | ·8585540 |
| 22 | 1 28 20·21 | 8 41 19·7 | ·1860197 | 1 31·2 | 55 30 16·6 | 1 8 39·2 | ·8584739 |
| 23 | 1 32 54·57 | 9 10 45·2 | ·1848976 | 1 31·8 | 57 6 40·4 | 1 3 15·0 | ·8583944 |
| 24 | 1 37 29·50 | 9 39 58·0 | ·1837587 | 1 32·5 | 58 43 5·8 | 0 57 47·7 | ·8583156 |
| 25 | 1 42 5·02 | 10 8 57·4 | ·1826029 | 1 33·2 | 60 19 33·0 | 0 52 17·5 | ·8582376 |
| 26 | 1 46 41·18 | 10 37 42·6 | ·1814301 | 1 33·8 | 61 56 2·0 | 0 46 44·8 | ·8581605 |
| 27 | 1 51 18·00 | 11 6 12·9 | ·1802402 | 1 34·5 | 63 32 32·7 | 0 41 9·7 | ·8580842 |
| 28 | 1 55 55·53 | 11 34 27·6 | ·1790331 | 1 35·2 | 65 9 5·2 | 0 35 32·5 | ·8580089 |
| 29 | 2 0 33·80 | 12 2 25·9 | ·1778087 | 1 35·8 | 66 45 39·5 | 0 29 53·6 | ·8579346 |
| 30 | 2 5 12·83 | 12 30 7·2 | ·1765670 | 1 36·5 | 68 22 15·6 | 0 24 13·1 | ·8578614 |
| | 2 9 52·67 | 12 57 30·6 | ·1753077 | 1 37·2 | 69 58 53·6 | 0 18 31·3 | ·8577893 |
| | 2 14 33·32 | N. 13 24 35·4 | 0·1740307 | 1 38·0 | 71 35 33·3 | S. 0 12 48·6 | 9·8577184 |

# MARCH, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 3 53 38 ·71 | +11 ·31 | 0 ·34 | S. 2 1 34 ·3 | +77 ·4 | 5 ·1 | 5 ·3 |
| 3 58 10 ·07 | 11 ·30 | 0 ·35 | 1 30 34 ·5 | 77 ·6 | 5 ·2 | 5 ·4 |
| 0 2 41 ·16 | 11 ·29 | 0 ·35 | 0 59 31 ·7 | 77 ·7 | 5 ·2 | 5 ·4 |
| 0 7 12 ·02 | 11 ·28 | 0 ·35 | S. 0 28 26 ·7 | 77 ·7 | 5 ·2 | 5 ·4 |
| 0 11 42 ·70 | 11 ·27 | 0 ·35 | N. 0 2 39 ·7 | 77 ·8 | 5 ·2 | 5 ·4 |
| 0 16 13 ·24 | 11 ·27 | 0 ·35 | 0 33 46 ·7 | 77 ·8 | 5 ·2 | 5 ·4 |
| 0 20 43 ·70 | 11 ·27 | 0 ·35 | 1 4 53 ·7 | 77 ·8 | 5 ·2 | 5 ·4 |
| 0 25 14 ·10 | 11 ·27 | 0 ·35 | 1 36 0 ·0 | 77 ·7 | 5 ·2 | 5 ·4 |
| 0 29 44 ·50 | 11 ·27 | 0 ·35 | 2 7 4 ·7 | 77 ·6 | 5 ·2 | 5 ·4 |
| 0 34 14 ·94 | 11 ·27 | 0 ·35 | 2 38 7 ·3 | 77 ·5 | 5 ·2 | 5 ·4 |
| 0 38 45 ·45 | 11 ·28 | 0 ·35 | 3 9 6 ·9 | 77 ·4 | 5 ·2 | 5 ·4 |
| 0 43 16 ·06 | 11 ·28 | 0 ·36 | 3 40 2 ·8 | 77 ·2 | 5 ·3 | 5 ·5 |
| 0 47 46 ·84 | 11 ·29 | 0 ·36 | 4 10 54 ·2 | 77 ·0 | 5 ·3 | 5 ·5 |
| 0 52 17 ·82 | 11 ·30 | 0 ·36 | 4 41 40 ·4 | 76 ·8 | 5 ·3 | 5 ·5 |
| 0 56 49 ·05 | 11 ·31 | 0 ·36 | 5 12 20 ·5 | 76 ·5 | 5 ·3 | 5 ·5 |
| 1 1 20 ·55 | 11 ·32 | 0 ·36 | 5 42 54 ·0 | 76 ·2 | 5 ·3 | 5 ·5 |
| 1 5 52 ·37 | 11 ·33 | 0 ·36 | 6 13 20 ·0 | 75 ·9 | 5 ·3 | 5 ·5 |
| 1 10 24 ·55 | 11 ·35 | 0 ·36 | 6 43 37 ·8 | 75 ·6 | 5 ·3 | 5 ·5 |
| 1 14 57 ·12 | 11 ·37 | 0 ·36 | 7 13 46 ·6 | 75 ·2 | 5 ·3 | 5 ·5 |
| 1 19 30 ·12 | 11 ·38 | 0 ·36 | 7 43 45 ·8 | 74 ·8 | 5 ·4 | 5 ·6 |
| 1 24 3 ·60 | 11 ·40 | 0 ·36 | 8 13 34 ·5 | 74 ·3 | 5 ·4 | 5 ·6 |
| 1 28 37 ·57 | 11 ·42 | 0 ·37 | 8 43 11 ·9 | 73 ·8 | 5 ·4 | 5 ·6 |
| 1 33 12 ·08 | 11 ·45 | 0 ·37 | 9 12 37 ·4 | 73 ·3 | 5 ·4 | 5 ·6 |
| 1 37 47 ·16 | 11 ·47 | 0 ·37 | 9 41 50 ·1 | 72 ·8 | 5 ·4 | 5 ·6 |
| 1 42 22 ·84 | 11 ·50 | 0 ·37 | 10 10 49 ·4 | 72 ·2 | 5 ·4 | 5 ·6 |
| 1 46 59 ·18 | 11 ·53 | 0 ·37 | 10 39 34 ·4 | 71 ·6 | 5 ·4 | 5 ·6 |
| 1 51 36 ·17 | 11 ·56 | 0 ·38 | 11 8 4 ·5 | 70 ·9 | 5 ·5 | 5 ·7 |
| 1 56 13 ·88 | 11 ·59 | 0 ·38 | 11 36 19 ·0 | 70 ·3 | 5 ·5 | 5 ·7 |
| 0 52 ·34 | 11 ·62 | 0 ·38 | 12 4 17 ·0 | 69 ·6 | 5 ·5 | 5 ·7 |
| 31 ·56 | 11 ·65 | 0 ·38 | 12 31 58 ·0 | 68 ·8 | 5 ·5 | 5 ·7 |
| 11 ·60 | 11 ·69 | 0 ·38 | 12 59 21 ·0 | 68 ·1 | 5 ·5 | 5 ·7 |
| | +11 ·72 | 0 ·38 | N. 13 26 25 ·3 | +67 ·3 | 5 ·5 | 5 ·7 |

# APRIL, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | |
|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ |
| 1 | 2 14 33·32 | N.13 24 35·4 | 0·1740307 | 1 38·0 | 71 35 33·3 | S.0 12 48·6 |
| 2 | 2 19 14·83 | 13 51 21·0 | ·1727359 | 1 38·7 | 73 12 14·9 | 0 7 5·2 |
| 3 | 2 23 57·23 | 14 17 46·5 | ·1714232 | 1 39·5 | 74 48 58·3 | S.0 1 21·3 |
| 4 | 2 28 40·54 | 14 43 51·3 | ·1700923 | 1 40·3 | 76 25 43·6 | N.0 4 22·8 |
| 5 | 2 33 24·77 | 15 9 34·7 | ·1687430 | 1 41·1 | 78 2 30·6 | 0 10 6·7 |
| 6 | 2 38 9·96 | 15 34 55·9 | ·1673751 | 1 41·9 | 79 39 19·4 | 0 15 50·3 |
| 7 | 2 42 56·13 | 15 59 54·2 | ·1659884 | 1 42·7 | 81 16 10·0 | 0 21 33·2 |
| 8 | 2 47 43·28 | 16 24 28·8 | ·1645826 | 1 43·6 | 82 53 2·3 | 0 27 15·2 |
| 9 | 2 52 31·44 | 16 48 39·0 | ·1631574 | 1 44·5 | 84 29 56·4 | 0 32 56·0 |
| 10 | 2 57 20·61 | 17 12 24·0 | ·1617125 | 1 45·3 | 86 6 52·2 | 0 38 35·3 |
| 11 | 3 2 10·80 | 17 35 43·2 | ·1602478 | 1 46·2 | 87 43 49·6 | 0 44 12·9 |
| 12 | 3 7 2·03 | 17 58 35·7 | ·1587630 | 1 47·1 | 89 20 48·7 | 0 49 48·4 |
| 13 | 3 11 54·29 | 18 21 0·9 | ·1572578 | 1 48·0 | 90 57 49·6 | 0 55 21·7 |
| 14 | 3 16 47·60 | 18 42 57·9 | ·1557321 | 1 49·0 | 92 34 52·2 | 1 0 52·4 |
| 15 | 3 21 41·95 | 19 4 26·1 | ·1541857 | 1 50·0 | 94 11 56·5 | 1 6 20·2 |
| 16 | 3 26 37·34 | 19 25 24·8 | ·1526182 | 1 50·9 | 95 49 2·5 | 1 11 45·0 |
| 17 | 3 31 33·76 | 19 45 53·4 | ·1510295 | 1 51·9 | 97 26 10·2 | 1 17 6·3 |
| 18 | 3 36 31·20 | 20 5 51·0 | ·1494193 | 1 52·9 | 99 3 19·5 | 1 22 24·1 |
| 19 | 3 41 29·65 | 20 25 17·0 | ·1477876 | 1 54·0 | 100 40 30·3 | 1 27 38·0 |
| 20 | 3 46 29·10 | 20 44 10·9 | ·1461342 | 1 55·1 | 102 17 42·7 | 1 32 47·7 |
| 21 | 3 51 29·52 | 21 2 32·0 | ·1444590 | 1 56·2 | 103 54 56·4 | 1 37 53·0 |
| 22 | 3 56 30·91 | 21 20 19·3 | ·1427620 | 1 57·2 | 105 32 11·6 | 1 42 53·7 |
| 23 | 4 1 33·24 | 21 37 32·4 | ·1410429 | 1 58·3 | 107 9 28·1 | 1 47 49·5 |
| 24 | 4 6 36·48 | 21 54 11·0 | ·1393018 | 1 59·4 | 108 46 46·0 | 1 52 40·1 |
| 25 | 4 11 40·62 | 22 10 14·3 | ·1375385 | 2 0·5 | 110 24 5·1 | 1 57 25·4 |
| 26 | 4 16 45·62 | 22 25 41·3 | ·1357528 | 2 1·7 | 112 1 25·5 | 2 2 5·0 |
| 27 | 4 21 51·47 | 22 40 32·0 | ·1339448 | 2 2·9 | 113 38 47·1 | 2 6 38·8 |
| 28 | 4 26 58·12 | 22 54 45·8 | ·1321141 | 2 4·0 | 115 16 9·9 | 2 11 6·6 |
| 29 | 4 32 5·55 | 23 8 22·3 | ·1302609 | 2 5·2 | 116 53 33·8 | 2 15 28·1 |
| 30 | 4 37 13·73 | 23 21 20·5 | ·1283849 | 2 6·4 | 118 30 58·8 | 2 19 43·1 |
| 31 | 4 42 22·63 | N.23 33 40·3 | 0·1264859 | 2 7·6 | 120 8 24·9 | N.2 23 51·4 |

# APRIL, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 2 14 52 ·45 | +11 ·72 | 0 ·38 | N.13 26 25 ·3 | +67 ·3 | 5 ·5 | 5 ·7 |
| 2 19 34 ·16 | 11 ·75 | 0 ·38 | 13 53 10 ·5 | 66 ·5 | 5 ·6 | 5 ·8 |
| 2 24 16 ·77 | 11 ·79 | 0 ·38 | 14 19 35 ·5 | 65 ·6 | 5 ·6 | 5 ·8 |
| 2 29 0 ·30 | 11 ·83 | 0 ·38 | 14 45 39 ·6 | 64 ·7 | 5 ·6 | 5 ·8 |
| 2 33 44 ·75 | 11 ·87 | 0 ·39 | 15 11 22 ·3 | 63 ·8 | 5 ·6 | 5 ·8 |
| 2 38 30 ·17 | 11 ·91 | 0 ·39 | 15 36 42 ·7 | 62 ·9 | 5 ·6 | 5 ·8 |
| 2 43 16 ·58 | 11 ·95 | 0 ·39 | 16 1 40 ·2 | 61 ·9 | 5 ·6 | 5 ·9 |
| 2 48 3 ·98 | 12 ·00 | 0 ·39 | 16 26 14 ·0 | 60 ·9 | 5 ·7 | 5 ·9 |
| 2 52 52 ·39 | 12 ·04 | 0 ·39 | 16 50 23 ·3 | 59 ·9 | 5 ·7 | 5 ·9 |
| 2 57 41 ·80 | 12 ·08 | 0 ·40 | 17 14 7 ·2 | 58 ·8 | 5 ·7 | 5 ·9 |
| 3 2 32 ·25 | 12 ·12 | 0 ·40 | 17 37 25 ·4 | 57 ·7 | 5 ·7 | 5 ·9 |
| 3 7 23 ·74 | 12 ·17 | 0 ·40 | 18 0 16 ·8 | 56 ·6 | 5 ·7 | 6 ·0 |
| 3 12 16 ·26 | 12 ·21 | 0 ·40 | 18 22 40 ·7 | 55 ·4 | 5 ·8 | 6 ·0 |
| 3 17 9 ·84 | 12 ·25 | 0 ·41 | 18 44 36 ·4 | 54 ·2 | 5 ·8 | 6 ·0 |
| 3 22 4 ·46 | 12 ·30 | 0 ·41 | 19 6 3 ·2 | 53 ·0 | 5 ·8 | 6 ·0 |
| 3 27 0 ·13 | 12 ·34 | 0 ·41 | 19 27 0 ·5 | 51 ·8 | 5 ·8 | 6 ·0 |
| 3 31 56 ·84 | 12 ·38 | 0 ·41 | 19 47 27 ·6 | 50 ·5 | 5 ·8 | 6 ·1 |
| 3 36 54 ·57 | 12 ·43 | 0 ·42 | 20 7 23 ·6 | 49 ·2 | 5 ·8 | 6 ·1 |
| 3 41 53 ·31 | 12 ·47 | 0 ·42 | 20 26 47 ·9 | 47 ·8 | 5 ·9 | 6 ·1 |
| 3 46 53 ·06 | 12 ·51 | 0 ·42 | 20 45 40 ·1 | 46 ·5 | 5 ·9 | 6 ·1 |
| 3 51 53 ·78 | 12 ·55 | 0 ·42 | 21 3 59 ·4 | 45 ·1 | 5 ·9 | 6 ·1 |
| 3 56 55 ·47 | 12 ·59 | 0 ·42 | 21 21 44 ·7 | 43 ·7 | 5 ·9 | 6 ·2 |
| 4 1 58 ·11 | 12 ·63 | 0 ·42 | 21 38 55 ·8 | 42 ·2 | 5 ·9 | 6 ·2 |
| 4 7 1 ·66 | 12 ·67 | 0 ·43 | 21 55 32 ·3 | 40 ·8 | 6 ·0 | 6 ·2 |
| 4 12 6 ·11 | 12 ·70 | 0 ·43 | 22 11 33 ·3 | 39 ·3 | 6 ·0 | 6 ·2 |
| 4 17 11 ·43 | 12 ·74 | 0 ·43 | 22 26 58 ·0 | 37 ·8 | 6 ·0 | 6 ·3 |
| 4 22 17 ·60 | 12 ·77 | 0 ·44 | 22 41 46 ·3 | 36 ·2 | 6 ·0 | 6 ·3 |
| 4 27 24 ·56 | 12 ·81 | 0 ·44 | 22 55 57 ·6 | 34 ·7 | 6 ·1 | 6 ·3 |
| 4 32 32 ·31 | 12 ·84 | 0 ·44 | 23 9 31 ·5 | 33 ·1 | 6 ·1 | 6 ·4 |
| 4 37 40 ·81 | 12 ·87 | 0 ·45 | 23 22 27 ·0 | 31 ·5 | 6 ·1 | 6 ·4 |
| 4 42 50 ·02 | +12 ·90 | 0 ·45 | N.23 34 44 ·0 | +29 ·9 | 6 ·2 | 6 ·4 |

# MAY, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | |
|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ |
| 1 | 4 42 22·63 | N.23 33 40·3 | 0·1264859 | 2 7·6 | 120 8 24·9 | N.2 23 51·4 |
| 2 | 4 47 32·19 | 23 45 21·4 | ·1245637 | 2 8·8 | 121 45 51·8 | 2 27 52·7 |
| 3 | 4 52 42·37 | 23 56 23·3 | ·1226183 | 2 10·0 | 123 23 19·7 | 2 31 47·0 |
| 4 | 4 57 53·13 | 24 6 45·3 | ·1206492 | 2 11·2 | 125 0 48·4 | 2 35 33·9 |
| 5 | 5 3 4·43 | 24 16 27·2 | ·1186563 | 2 12·5 | 126 38 17·7 | 2 39 13·4 |
| 6 | 5 8 16·20 | 24 25 28·7 | ·1166393 | 2 13·8 | 128 15 47·7 | 2 42 45·2 |
| 7 | 5 13 28·40 | 24 33 49·4 | ·1145979 | 2 15·0 | 129 53 18·3 | 2 46 9·2 |
| 8 | 5 18 40·98 | 24 41 29·0 | ·1125318 | 2 16·3 | 131 30 49·4 | 2 49 25·2 |
| 9 | 5 23 53·88 | 24 48 27·2 | ·1104408 | 2 17·6 | 133 8 20·9 | 2 52 32·9 |
| 10 | 5 29 7·04 | 24 54 43·8 | ·1083245 | 2 18·8 | 134 45 52·8 | 2 55 32·4 |
| 11 | 5 34 20·39 | 25 0 18·5 | ·1061826 | 2 20·1 | 136 23 24·9 | 2 58 23·3 |
| 12 | 5 39 33·89 | 25 5 11·2 | ·1040149 | 2 21·4 | 138 0 57·3 | 3 1 5·7 |
| 13 | 5 44 47·46 | 25 9 21·7 | ·1018211 | 2 22·7 | 139 38 29·9 | 3 3 39·4 |
| 14 | 5 50 1·04 | 25 12 49·8 | ·0996008 | 2 24·0 | 141 16 2·6 | 3 6 4·1 |
| 15 | 5 55 14·56 | 25 15 35·6 | ·0973539 | 2 25·3 | 142 53 35·3 | 3 8 19·9 |
| 16 | 6 0 27·95 | 25 17 38·9 | ·0950801 | 2 26·5 | 144 31 7·8 | 3 10 26·6 |
| 17 | 6 5 41·14 | 25 18 59·8 | ·0927791 | 2 27·8 | 146 8 40·1 | 3 12 24·1 |
| 18 | 6 10 54·05 | 25 19 38·2 | ·0904508 | 2 29·1 | 147 46 12·0 | 3 14 12·3 |
| 19 | 6 16 6·61 | 25 19 34·1 | ·0880950 | 2 30·3 | 149 23 43·6 | 3 15 51·2 |
| 20 | 6 21 18·75 | 25 18 47·7 | ·0857114 | 2 31·6 | 151 1 14·5 | 3 17 20·6 |
| 21 | 6 26 30·41 | 25 17 19·0 | ·0833000 | 2 32·9 | 152 38 44·9 | 3 18 40·5 |
| 22 | 6 31 41·51 | 25 15 8·1 | ·0808605 | 2 34·1 | 154 16 14·6 | 3 19 50·8 |
| 23 | 6 36 52·00 | 25 12 15·4 | ·0783929 | 2 35·3 | 155 53 43·6 | 3 20 51·5 |
| 24 | 6 42 1·80 | 25 8 40·9 | ·0758970 | 2 36·5 | 157 31 11·8 | 3 21 42·5 |
| 25 | 6 47 10·85 | 25 4 25·0 | ·0733727 | 2 37·7 | 159 8 39·0 | 3 22 23·8 |
| 26 | 6 52 19·09 | 24 59 27·8 | ·0708198 | 2 38·9 | 160 46 5·3 | 3 22 55·3 |
| 27 | 6 57 26·45 | 24 53 49·7 | ·0682382 | 2 40·1 | 162 23 30·5 | 3 23 17·1 |
| 28 | 7 2 32·89 | 24 47 31·0 | ·0656277 | 2 41·3 | 164 0 54·6 | 3 23 29·2 |
| 29 | 7 7 38·34 | 24 40 32·0 | ·0629882 | 2 42·4 | 165 38 17·4 | 3 |
| 30 | 7 12 42·74 | 24 32 53·2 | ·0603194 | 2 43·5 | 167 15 38·9 | |
| 31 | 7 17 46·04 | 24 24 34·9 | ·0576212 | 2 44·7 | 168 52 [illegible] | |
| 32 | 7 22 48·19 | N.24 15 37·6 | 0·0548933 | 2 45·8 | 170 30 | |

# MAY, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 4 42 50 ·02 | +12 ·90 | 0 ·45 | N.23 34 44 ·0 | +29 ·9 | 6 ·2 | 6 ·4 |
| 4 47 59 ·90 | 12 ·92 | 0 ·46 | 23 46 22 ·2 | 28 ·3 | 6 ·2 | 6 ·4 |
| 4 53 10 ·40 | 12 ·95 | 0 ·46 | 23 57 21 ·1 | 26 ·6 | 6 ·2 | 6 ·5 |
| 4 58 21 ·48 | 12 ·97 | 0 ·46 | 24 7 40 ·0 | 24 ·9 | 6 ·2 | 6 ·5 |
| 5 3 33 ·08 | 12 ·99 | 0 ·47 | 24 17 18 ·7 | 23 ·3 | 6 ·3 | 6 ·5 |
| 5 8 45 ·17 | 13 ·01 | 0 ·47 | 24 26 16 ·9 | 21 ·6 | 6 ·3 | 6 ·5 |
| 5 13 57 ·69 | 13 ·03 | 0 ·47 | 24 34 34 ·3 | 19 ·9 | 6 ·3 | 6 ·6 |
| 5 19 10 ·58 | 13 ·04 | 0 ·47 | 24 42 10 ·4 | 18 ·1 | 6 ·3 | 6 ·6 |
| 5 24 23 ·79 | 13 ·05 | 0 ·48 | 24 49 5 ·0 | 16 ·4 | 6 ·4 | 6 ·6 |
| 5 29 37 ·25 | 13 ·06 | 0 ·48 | 24 55 18 ·0 | 14 ·7 | 6 ·4 | 6 ·7 |
| 5 34 50 ·90 | 13 ·07 | 0 ·48 | 25 0 48 ·9 | 12 ·9 | 6 ·4 | 6 ·7 |
| 5 40 4 ·69 | 13 ·08 | 0 ·48 | 25 5 37 ·7 | 11 ·2 | 6 ·5 | 6 ·8 |
| 5 45 18 ·53 | 13 ·08 | 0 ·48 | 25 9 44 ·2 | 9 ·4 | 6 ·5 | 6 ·8 |
| 5 50 32 ·39 | 13 ·08 | 0 ·49 | 25 13 8 ·3 | 7 ·6 | 6 ·6 | 6 ·8 |
| 5 55 46 ·18 | 13 ·07 | 0 ·49 | 25 15 50 ·0 | 5 ·9 | 6 ·6 | 6 ·9 |
| 6 0 59 ·83 | 13 ·06 | 0 ·49 | 25 17 49 ·1 | 4 ·1 | 6 ·6 | 6 ·9 |
| 6 6 13 ·27 | 13 ·05 | 0 ·50 | 25 19 5 ·8 | 2 ·3 | 6 ·7 | 6 ·9 |
| 6 11 26 ·42 | 13 ·04 | 0 ·50 | 25 19 39 ·9 | + 0 ·5 | 6 ·7 | 7 ·0 |
| 6 16 39 ·22 | 13 ·02 | 0 ·50 | 25 19 31 ·4 | — 1 ·2 | 6 ·7 | 7 ·0 |
| 6 21 51 ·59 | 13 ·00 | 0 ·51 | 25 18 40 ·5 | 3 ·0 | 6 ·8 | 7 ·0 |
| 6 27 3 ·47 | 12 ·98 | 0 ·51 | 25 17 7 ·2 | 4 ·8 | 6 ·8 | 7 ·1 |
| 6 32 14 ·77 | 12 ·96 | 0 ·51 | 25 14 51 ·7 | 6 ·5 | 6 ·8 | 7 ·1 |
| 6 37 25 ·45 | 12 ·93 | 0 ·51 | 25 11 54 ·3 | 8 ·3 | 6 ·9 | 7 ·2 |
| 6 42 35 ·43 | 12 ·90 | 0 ·52 | 25 8 15 ·1 | 10 ·0 | 6 ·9 | 7 ·2 |
| 6 47 44 ·66 | 12 ·87 | 0 ·52 | 25 3 54 ·5 | 11 ·7 | 7 ·0 | 7 ·2 |
| 6 52 53 ·06 | 12 ·83 | 0 ·52 | 24 58 52 ·5 | 13 ·4 | 7 ·0 | 7 ·3 |
| 6 58 0 ·58 | 12 ·79 | 0 ·52 | 24 53 9 ·6 | 15 ·1 | 7 ·0 | 7 ·3 |
| 7 3 7 ·16 | 12 ·75 | 0 ·53 | 24 46 46 ·1 | 16 ·8 | 7 ·1 | 7 ·4 |
| [illegible] | 12 ·74 | 0 ·53 | 24 39 42 ·2 | 18 ·5 | 7 ·1 | 7 ·4 |
| [illegible] | 12 ·67 | 0 ·53 | 24 31 58 ·5 | 20 ·1 | 7 ·2 | 7 ·5 |
| [illegible] | 12 ·62 | 0 ·54 | 24 23 35 ·3 | 21 ·8 | 7 ·2 | 7 ·5 |
| | 12 ·57 | 0 ·54 | N.24 14 33 ·1 | —23 ·4 | 7 ·3 | 7 ·6 |

# JUNE, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | R |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 7 22 48·19 | N.24 15 37·6 | 0·0548933 | 2 45·8 | 170 30 17·6 | N.3 22 39·6 | 9·8 |
| 2 | 7 27 49·14 | 24 6 1·6 | ·0521354 | 2 46·9 | 172 7 34·5 | 3 22 2·8 | ·8 |
| 3 | 7 32 48·84 | 23 55 47·5 | ·0493473 | 2 47·9 | 173 44 49·7 | 3 21 16·4 | ·8 |
| 4 | 7 37 47·25 | 23 44 55·6 | ·0465287 | 2 48·9 | 175 22 3·2 | 3 20 20·4 | ·7 |
| 5 | 7 42 44·33 | 23 33 26·5 | ·0436793 | 2 49·9 | 176 59 14·8 | 3 19 14·8 | ·7 |
| 6 | 7 47 40·04 | 23 21 20·7 | ·0407986 | 2 50·9 | 178 36 24·5 | 3 17 59·7 | ·7 |
| 7 | 7 52 34·33 | 23 8 38·6 | ·0378862 | 2 51·8 | 180 13 32·2 | 3 16 35·1 | |
| 8 | 7 57 27·16 | 22 55 21·0 | ·0349419 | 2 52·7 | 181 50 37·9 | 3 15 1·2 | |
| 9 | 8 2 18·50 | 22 41 28·3 | ·0319650 | 2 53·7 | 183 27 41·6 | 3 13 18·0 | |
| 10 | 8 7 8·31 | 22 27 1·2 | ·0289553 | 2 54·6 | 185 4 43·0 | 3 11 25·6 | |
| 11 | 8 11 56·56 | 22 12 0·2 | ·0259123 | 2 55·5 | 186 41 42·5 | 3 9 24·1 | |
| 12 | 8 16 43·20 | 21 56 26·1 | ·0228358 | 2 56·3 | 188 18 39·7 | 3 7 13·6 | |
| 13 | 8 21 28·22 | 21 40 19·5 | ·0197254 | 2 57·1 | 189 55 34·5 | 3 4 54·3 | |
| 14 | 8 26 11·57 | 21 23 41·0 | ·0165806 | 2 57·9 | 191 32 26·8 | 3 2 26·3 | |
| 15 | 8 30 53·23 | 21 6 31·3 | ·0134011 | 2 58·6 | 193 9 16·8 | 2 59 49·6 | |
| 16 | 8 35 33·18 | 20 48 51·2 | ·0101865 | 2 59·3 | 194 46 4·1 | 2 57 4·4 | |
| 17 | 8 40 11·38 | 20 30 41·3 | ·0069364 | 3 0·0 | 196 22 49·0 | 2 54 10·9 | |
| 18 | 8 44 47·81 | 20 12 2·3 | ·0036505 | 3 0·7 | 197 59 31·3 | 2 51 9·2 | |
| 19 | 8 49 22·46 | 19 52 54·9 | 0·0003286 | 3 1·3 | 199 36 10·9 | 2 47 59·4 | |
| 20 | 8 53 55·30 | 19 33 19·9 | 9·9969706 | 3 1·9 | 201 12 47·9 | 2 44 41·8 | |
| 21 | 8 58 26·33 | 19 13 18·0 | ·9935760 | 3 2·5 | 202 49 22·4 | 2 41 16·5 | |
| 22 | 9 2 55·52 | 18 52 49·9 | ·9901447 | 3 3·0 | 204 25 54·1 | 2 37 43·6 | |
| 23 | 9 7 22·88 | 18 31 56·3 | ·9866765 | 3 3·5 | 206 2 23·2 | 2 34 3·3 | |
| 24 | 9 11 48·39 | 18 10 38·1 | ·9831711 | 3 4·0 | 207 38 49·5 | 2 30 15·9 | |
| 25 | 9 16 12·04 | 17 48 55·9 | ·9796282 | 3 4·4 | 209 15 13·2 | 2 26 21·5 | |
| 26 | 9 20 33·84 | 17 26 50·5 | ·9760476 | 3 4·8 | 210 51 34·1 | 2 22 20·2 | |
| 27 | 9 24 53·77 | 17 4 22·5 | ·9724290 | 3 5·2 | 212 27 52·2 | 2 18 12·4 | |
| 28 | 9 29 11·83 | 16 41 32·8 | ·9687722 | 3 5·5 | 214 4 7·6 | 2 13 58·1 | |
| 29 | 9 33 28·03 | 16 18 22·0 | ·9650767 | 3 5·8 | 215 40 20·2 | 2 9 37·7 | |
| 30 | 9 37 42·37 | 15 54 50·8 | ·9613423 | 3 6·2 | 217 16 29·9 | 2 5 11·2 | |
| 31 | 9 41 54·86 | N.15 31 0·0 | 9·9575685 | 3 6·4 | 218 52 36·9 | N.2 0 39 | |

# JUNE, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 7 23 22 ·90 | +12 ·57 | 0 ·54 | N.24 14 33 ·1 | −23 ·4 | 7 ·3 | 7 ·6 |
| 7 28 23 ·93 | 12 ·52 | 0 ·54 | 24 4 52 ·2 | 25 ·0 | 7 ·3 | 7 ·6 |
| 7 33 23 ·70 | 12 ·46 | 0 ·54 | 23 54 33 ·3 | 26 ·6 | 7 ·4 | 7 ·7 |
| 7 38 22 ·17 | 12 ·41 | 0 ·54 | 23 43 36 ·6 | 28 ·1 | 7 ·4 | 7 ·7 |
| 7 43 19 ·30 | 12 ·35 | 0 ·54 | 23 32 2 ·7 | 29 ·7 | 7 ·5 | 7 ·8 |
| 7 48 15 ·04 | 12 ·29 | 0 ·55 | 23 19 52 ·0 | 31 ·2 | 7 ·5 | 7 ·8 |
| 7 53 9 ·36 | 12 ·23 | 0 ·55 | 23 7 5 ·2 | 32 ·7 | 7 ·6 | 7 ·9 |
| 7 58 2 ·21 | 12 ·17 | 0 ·55 | 22 53 42 ·9 | 34 ·2 | 7 ·6 | 7 ·9 |
| 8 2 53 ·55 | 12 ·11 | 0 ·55 | 22 39 45 ·4 | 35 ·6 | 7 ·7 | 8 ·0 |
| 8 7 43 ·35 | 12 ·04 | 0 ·56 | 22 25 13 ·6 | 37 ·0 | 7 ·7 | 8 ·0 |
| 8 12 31 ·58 | 11 ·98 | 0 ·56 | 22 10 8 ·0 | 38 ·4 | 7 ·8 | 8 ·1 |
| 8 17 18 ·19 | 11 ·91 | 0 ·56 | 21 54 29 ·4 | 39 ·8 | 7 ·9 | 8 ·2 |
| 8 22 3 ·17 | 11 ·84 | 0 ·57 | 21 38 18 ·3 | 41 ·1 | 7 ·9 | 8 ·2 |
| 8 26 46 ·47 | 11 ·77 | 0 ·57 | 21 21 35 ·4 | 42 ·4 | 8 ·0 | 8 ·3 |
| 8 31 28 ·06 | 11 ·70 | 0 ·57 | 21 4 21 ·3 | 43 ·7 | 8 ·0 | 8 ·3 |
| 8 36 7 ·93 | 11 ·62 | 0 ·58 | 20 46 36 ·9 | 45 ·0 | 8 ·1 | 8 ·4 |
| 8 40 46 ·04 | 11 ·55 | 0 ·58 | 20 28 22 ·8 | 46 ·2 | 8 ·1 | 8 ·4 |
| 8 45 22 ·37 | 11 ·47 | 0 ·58 | 20 9 39 ·7 | 47 ·4 | 8 ·2 | 8 ·5 |
| 8 49 56 ·92 | 11 ·40 | 0 ·59 | 19 50 28 ·3 | 48 ·6 | 8 ·3 | 8 ·6 |
| 8 54 29 ·65 | 11 ·33 | 0 ·59 | 19 30 49 ·4 | 49 ·7 | 8 ·3 | 8 ·6 |
| 8 59 0 ·55 | 11 ·25 | 0 ·59 | 19 10 43 ·6 | 50 ·8 | 8 ·4 | 8 ·7 |
| 9 3 29 ·61 | 11 ·18 | 0 ·59 | 18 50 11 ·8 | 51 ·9 | 8 ·5 | 8 ·8 |
| 9 7 56 ·83 | 11 ·10 | 0 ·60 | 18 29 14 ·6 | 52 ·9 | 8 ·5 | 8 ·8 |
| 9 12 22 ·19 | 11 ·02 | 0 ·60 | 18 7 52 ·9 | 53 ·9 | 8 ·6 | 8 ·9 |
| 9 16 45 ·69 | 10 ·94 | 0 ·61 | 17 46 7 ·3 | 54 ·9 | 8 ·7 | 9 ·0 |
| 9 21 7 ·33 | 10 ·86 | 0 ·61 | 17 23 58 ·6 | 55 ·8 | 8 ·7 | 9 ·0 |
| 9 25 27 ·08 | 10 ·78 | 0 ·61 | 17 1 27 ·4 | 56 ·8 | 8 ·8 | 9 ·1 |
| 9 29 44 ·97 | 10 ·71 | 0 ·62 | 16 38 34 ·6 | 57 ·7 | 8 ·9 | 9 ·2 |
| 9 34 0 ·99 | 10 ·63 | 0 ·62 | 16 15 20 ·8 | 58 ·5 | 8 ·9 | 9 ·3 |
| 9 38 15 ·13 | 10 ·55 | 0 ·62 | 15 51 46 ·8 | 59 ·3 | 9 ·0 | 9 ·4 |
| 9 42 27 ·43 | +10 ·47 | 0 ·63 | N.15 27 53 ·3 | −60 ·1 | 9 ·1 | 9 ·5 |

# JULY, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | |
|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ |
| 1 | 9 41 54·86 | N.15 31 0·0 | 9·9575685 | 3 6·4 | 218 52 36·9 | N.2 0 39·0 |
| 2 | 9 46 5·48 | 15 6 50·2 | ·9537549 | 3 6·6 | 220 28 41·1 | 1 56 1·3 |
| 3 | 9 50 14·25 | 14 42 22·1 | ·9499012 | 3 6·9 | 222 4 42·5 | 1 51 18·2 |
| 4 | 9 54 21·18 | 14 17 36·4 | ·9460067 | 3 7·1 | 223 40 41·2 | 1 46 30·1 |
| 5 | 9 58 26·27 | 13 52 33·9 | ·9420709 | 3 7·3 | 225 16 37·2 | 1 41 37·1 |
| 6 | 10 2 29·52 | 13 27 15·2 | ·9380934 | 3 7·4 | 226 52 30·7 | 1 36 39·4 |
| 7 | 10 6 30·95 | 13 1 41·1 | ·9340734 | 3 7·4 | 228 28 21·5 | 1 31 37·4 |
| 8 | 10 10 30·55 | 12 35 52·2 | ·9300104 | 3 7·5 | 230 4 9·7 | 1 26 31·2 |
| 9 | 10 14 28·32 | 12 9 49·3 | ·9259038 | 3 7·5 | 231 39 55·4 | 1 21 21·1 |
| 10 | 10 18 24·27 | 11 43 33·1 | ·9217531 | 3 7·5 | 233 15 38·5 | 1 16 7·3 |
| 11 | 10 22 18·40 | 11 17 4·3 | ·9175575 | 3 7·4 | 234 51 19·0 | 1 10 50·1 |
| 12 | 10 26 10·71 | 10 50 23·6 | ·9133165 | 3 7·4 | 236 26 57·0 | 1 5 29·7 |
| 13 | 10 30 1·18 | 10 23 31·8 | ·9090293 | 3 7·3 | 238 2 32·5 | 1 0 6·5 |
| 14 | 10 33 49·81 | 9 56 29·6 | ·9046953 | 3 7·2 | 239 38 5·7 | 0 54 40·5 |
| 15 | 10 37 36·59 | 9 29 17·9 | ·9003139 | 3 7·0 | 241 13 36·4 | 0 49 12·2 |
| 16 | 10 41 21·52 | 9 1 57·3 | ·8958846 | 3 6·8 | 242 49 4·8 | 0 43 41·6 |
| 17 | 10 45 4·59 | 8 34 28·5 | ·8914069 | 3 6·6 | 244 24 31·0 | 0 38 9·2 |
| 18 | 10 48 45·80 | 8 6 52·4 | ·8868802 | 3 6·3 | 245 59 55·0 | 0 32 35·1 |
| 19 | 10 52 25·14 | 7 39 9·6 | ·8823042 | 3 6·0 | 247 35 16·9 | 0 26 59·7 |
| 20 | 10 56 2·60 | 7 11 20·8 | ·8776783 | 3 5·7 | 249 10 36·8 | 0 21 23·1 |
| 21 | 10 59 38·17 | 6 43 26·8 | ·8730023 | 3 5·4 | 250 45 54·7 | 0 15 45·6 |
| 22 | 11 3 11·84 | 6 15 28·3 | ·8682756 | 3 5·0 | 252 21 10·7 | 0 10 7·5 |
| 23 | 11 6 43·59 | 5 47 26·0 | ·8634979 | 3 4·6 | 253 56 24·9 | N.0 4 29·0 |
| 24 | 11 10 13·42 | 5 19 20·7 | ·8586687 | 3 4·1 | 255 31 37·2 | S.0 1 9·5 |
| 25 | 11 13 41·30 | 4 51 13·0 | ·8537878 | 3 3·6 | 257 6 47·8 | 0 6 48·0 |
| 26 | 11 17 7·22 | 4 23 3·7 | ·8488546 | 3 3·1 | 258 41 56·7 | 0 12 26·0 |
| 27 | 11 20 31·16 | 3 54 53·5 | ·8438690 | 3 2·6 | 260 17 4·0 | 0 18 3·3 |
| 28 | 11 23 53·11 | 3 26 43·0 | ·8388302 | 3 2·[illegible] | [illegible] | [illegible] |
| 29 | 11 27 13·04 | 2 58 32·9 | ·8337379 | 3 1·[illegible] | | |
| 30 | 11 30 30·94 | 2 30 23·8 | ·8285916 | 3 0·[illegible] | | |
| 31 | 11 33 46·78 | 2 2 16·4 | ·8233910 | 3 0·[illegible] | | |
| 32 | 11 37 0·54 | N. 1 34 11·5 | 9·8181354 | 2 59·3 | | |

# JULY, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 27 ·43 | +10 ·47 | 0 ·63 | N. 15 27 53 ·3 | −60 ·1 | 9 ·1 | 9 ·5 |
| 37 ·85 | 10 ·39 | 0 ·63 | 15 3 40 ·9 | 60 ·9 | 9 ·2 | 9 ·6 |
| 46 ·41 | 10 ·32 | 0 ·63 | 14 39 10 ·2 | 61 ·7 | 9 ·2 | 9 ·6 |
| 53 ·12 | 10 ·24 | 0 ·64 | 14 14 22 ·1 | 62 ·4 | 9 ·3 | 9 ·7 |
| 57 ·99 | 10 ·16 | 0 ·64 | 13 49 17 ·3 | 63 ·0 | 9 ·4 | 9 ·8 |
| 1 ·03 | 10 ·09 | 0 ·65 | 13 23 56 ·5 | 63 ·7 | 9 ·5 | 9 ·9 |
| 2 ·23 | 10 ·01 | 0 ·65 | 12 58 20 ·4 | 64 ·3 | 9 ·6 | 10 ·0 |
| 1 ·60 | 9 ·94 | 0 ·66 | 12 32 29 ·6 | 64 ·9 | 9 ·7 | 10 ·1 |
| 59 ·14 | 9 ·86 | 0 ·66 | 12 6 24 ·9 | 65 ·5 | 9 ·8 | 10 ·2 |
| 54 ·85 | 9 ·78 | 0 ·67 | 11 40 7 ·0 | 66 ·0 | 9 ·9 | 10 ·3 |
| 48 ·74 | 9 ·71 | 0 ·67 | 11 13 36 ·6 | 66 ·5 | 10 ·0 | 10 ·4 |
| 40 ·80 | 9 ·63 | 0 ·68 | 10 46 54 ·5 | 67 ·0 | 10 ·1 | 10 ·5 |
| 31 ·01 | 9 ·55 | 0 ·68 | 10 20 1 ·5 | 67 ·4 | 10 ·2 | 10 ·6 |
| 19 ·38 | 9 ·48 | 0 ·69 | 9 52 58 ·2 | 67 ·8 | 10 ·3 | 10 ·7 |
| 5 ·89 | 9 ·40 | 0 ·70 | 9 25 45 ·4 | 68 ·2 | 10 ·4 | 10 ·8 |
| 50 ·55 | 9 ·32 | 0 ·71 | 8 58 24 ·0 | 68 ·6 | 10 ·5 | 10 ·9 |
| 33 ·34 | 9 ·24 | 0 ·71 | 8 30 54 ·5 | 68 ·9 | 10 ·6 | 11 ·0 |
| 14 ·27 | 9 ·17 | 0 ·72 | 8 3 17 ·7 | 69 ·2 | 10 ·7 | 11 ·1 |
| 53 ·33 | 9 ·09 | 0 ·73 | 7 35 34 ·5 | 69 ·4 | 10 ·9 | 11 ·3 |
| 30 ·50 | 9 ·01 | 0 ·73 | 7 7 45 ·4 | 69 ·6 | 11 ·0 | 11 ·4 |
| 5 ·78 | 8 ·93 | 0 ·74 | 6 39 51 ·1 | 69 ·8 | 11 ·1 | 11 ·5 |
| 39 ·15 | 8 ·85 | 0 ·75 | 6 11 52 ·5 | 70 ·0 | 11 ·2 | 11 ·7 |
| 10 ·59 | 8 ·77 | 0 ·75 | 5 43 50 ·2 | 70 ·2 | 11 ·3 | 11 ·8 |
| 40 ·10 | 8 ·69 | 0 ·76 | 5 15 45 ·1 | 70 ·3 | 11 ·4 | 11 ·9 |
| 7 ·67 | 8 ·61 | 0 ·77 | 4 47 37 ·7 | 70 ·3 | 11 ·6 | 12 ·0 |
| 33 ·27 | 8 ·53 | 0 ·78 | 4 19 28 ·8 | 70 ·4 | 11 ·7 | 12 ·2 |
| 56 ·88 | 8 ·44 | 0 ·79 | 3 51 19 ·2 | 70 ·4 | 11 ·8 | 12 ·3 |
| 18 ·50 | 8 ·36 | 0 ·80 | 3 23 9 ·4 | 70 ·4 | 12 ·0 | 12 ·5 |
| 09 | 8 ·27 | 0 ·81 | 2 55 0 ·1 | 70 ·4 | 12 ·1 | 12 ·6 |
| | 8 ·19 | 0 ·82 | 2 26 52 ·0 | 70 ·3 | 12 ·3 | 12 ·8 |
| | 8 ·10 | 0 ·83 | 1 58 45 ·7 | 70 ·2 | 12 ·4 | 12 ·9 |
| | 8 ·01 | 0 ·84 | N. 1 30 42 ·0 | −70 ·1 | 12 ·6 | 13 ·1 |

# AUGUST, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | R |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 11 37 0·54 | N. 1 34 11·5 | 9·8181354 | 2 59·3 | 268 12 18·2 | S. 0 45 51·0 | 9·8 |
| 2 | 11 40 12·18 | 1 6 9·6 | ·8128242 | 2 58·6 | 269 47 17·3 | 0 51 19·0 | ·8 |
| 3 | 11 43 21·67 | 0 38 11·6 | ·8074568 | 2 57·8 | 271 22 15·3 | 0 56 44·5 | ·8 |
| 4 | 11 46 28·98 | N. 0 10 18·1 | ·8020326 | 2 57·0 | 272 57 12·3 | 1 2 7·4 | ·8 |
| 5 | 11 49 34·07 | S. 0 17 30·2 | ·7965510 | 2 56·1 | 274 32 8·3 | 1 7 27·3 | ·8 |
| 6 | 11 52 36·87 | 0 45 12·5 | ·7910114 | 2 55·2 | 276 7 3·5 | 1 12 44·1 | ·8 |
| 7 | 11 55 37·35 | 1 12 48·1 | ·7854131 | 2 54·3 | 277 41 57·9 | 1 17 57·6 | ·8 |
| 8 | 11 58 35·43 | 1 40 16·1 | ·7797558 | 2 53·3 | 279 16 51·5 | 1 23 7·4 | ·8 |
| 9 | 12 1 31·06 | 2 7 35·8 | ·7740387 | 2 52·2 | 280 51 44·4 | 1 28 13·3 | ·8 |
| 10 | 12 4 24·16 | 2 34 46·4 | ·7682612 | 2 51·1 | 282 26 36·6 | 1 33 15·1 | ·8 |
| 11 | 12 7 14·66 | 3 1 46·9 | ·7624229 | 2 50·1 | 284 1 28·3 | 1 38 12·7 | ·8 |
| 12 | 12 10 2·48 | 3 28 36·5 | ·7565232 | 2 48·9 | 285 36 19·6 | 1 43 5·7 | ·8 |
| 13 | 12 12 47·53 | 3 55 14·4 | ·7505620 | 2 47·7 | 287 11 10·4 | 1 47 54·0 | ·8 |
| 14 | 12 15 29·71 | 4 21 39·5 | ·7445394 | 2 46·5 | 288 46 1·0 | 1 52 37·3 | ·8 |
| 15 | 12 18 8·94 | 4 47 51·0 | ·7384552 | 2 45·2 | 290 20 51·4 | 1 57 15·4 | ·8 |
| 16 | 12 20 45·10 | 5 13 47·8 | ·7323098 | 2 43·9 | 291 55 41·6 | 2 1 48·2 | ·8 |
| 17 | 12 23 18·07 | 5 39 29·0 | ·7261033 | 2 42·5 | 293 30 31·8 | 2 6 15·3 | ·8 |
| 18 | 12 25 47·75 | 6 4 53·6 | ·7198362 | 2 41·0 | 295 5 21·9 | 2 10 36·7 | ·8 |
| 19 | 12 28 14·00 | 6 30 0·4 | ·7135090 | 2 39·5 | 296 40 12·1 | 2 14 52·1 | ·8 |
| 20 | 12 30 36·70 | 6 54 48·5 | ·7071224 | 2 37·9 | 298 15 2·3 | 2 19 1·3 | ·8 |
| 21 | 12 32 55·71 | 7 19 16·6 | ·7006775 | 2 36·3 | 299 49 52·7 | 2 23 4·2 | ·8 |
| 22 | 12 35 10·88 | 7 43 23·8 | ·6941755 | 2 34·6 | 301 24 43·4 | 2 27 0·5 | ·8 |
| 23 | 12 37 22·07 | 8 7 8·7 | ·6876179 | 2 32·8 | 302 59 34·2 | 2 30 50·1 | ·8 |
| 24 | 12 39 29·13 | 8 30 30·1 | ·6810063 | 2 31·0 | 304 34 25·3 | 2 34 32·8 | ·8 |
| 25 | 12 41 31·90 | 8 53 26·9 | ·6743423 | 2 29·1 | 306 9 16·7 | 2 38 8·5 | ·8 |
| 26 | 12 43 30·22 | 9 15 57·9 | ·6676280 | 2 27·1 | 307 44 8·5 | 2 41 36·9 | ·8 |
| 27 | 12 45 23·93 | 9 38 1·7 | ·6608656 | 2 25·1 | 309 19 0·8 | 2 44 58·0 | ·8 |
| 28 | 12 47 12·86 | 9 59 37·1 | ·6540576 | 2 23·0 | 310 53 53·7 | 2 48 11·6 | ·8 |
| 29 | 12 48 56·81 | 10 20 42·5 | ·6472066 | 2 20·7 | 312 28 47·2 | 2 51 17·4 | ·8 |
| 30 | 12 50 35·62 | 10 41 16·5 | ·6403159 | 2 18·4 | 314 3 41·3 | 2 54 15·5 | ·8 |
| 31 | 12 52 9·08 | 11 1 17·5 | ·6 | | 36·2 | 2 57 5·6 | ·8 |
| 32 | 12 53 37·01 | S. 11 20 43 | | | | | |

# AUGUST, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 7 24 ·52 | + 8 ·01 | 0 ·84 | N. 1 30 42 ·0 | —70 ·1 | 12 ·6 | 13 ·1 |
| 9 35 ·80 | 7 ·92 | 0 ·85 | 1 2 41 ·4 | 70 ·0 | 12 ·7 | 13 ·2 |
| 11 44 ·92 | 7 ·83 | 0 ·86 | 0 34 44 ·9 | 69 ·8 | 12 ·9 | 13 ·4 |
| 13 51 ·85 | 7 ·74 | 0 ·87 | N. 0 6 53 ·0 | 69 ·6 | 13 ·0 | 13 ·6 |
| 15 56 ·55 | 7 ·65 | 0 ·88 | S. 0 20 53 ·7 | 69 ·3 | 13 ·2 | 13 ·7 |
| 17 58 ·96 | 7 ·55 | 0 ·89 | 0 48 34 ·2 | 69 ·0 | 13 ·3 | 13 ·9 |
| 19 59 ·04 | 7 ·45 | 0 ·90 | 1 16 7 ·9 | 68 ·7 | 13 ·5 | 14 ·1 |
| 21 56 ·70 | 7 ·35 | 0 ·91 | 1 43 33 ·8 | 68 ·4 | 13 ·7 | 14 ·3 |
| 23 51 ·91 | 7 ·25 | 0 ·93 | 2 10 51 ·3 | 68 ·0 | 13 ·9 | 14 ·4 |
| 25 44 ·58 | 7 ·14 | 0 ·94 | 2 37 59 ·6 | 67 ·6 | 14 ·1 | 14 ·6 |
| 27 34 ·63 | 7 ·03 | 0 ·95 | 3 4 57 ·6 | 67 ·2 | 14 ·3 | 14 ·8 |
| 29 21 ·99 | 6 ·92 | 0 ·97 | 3 31 44 ·5 | 66 ·7 | 14 ·5 | 15 ·1 |
| 31 6 ·57 | 6 ·80 | 0 ·98 | 3 58 19 ·6 | 66 ·2 | 14 ·7 | 15 ·3 |
| 33 48 ·28 | 6 ·68 | 1 ·00 | 4 24 41 ·9 | 65 ·6 | 14 ·9 | 15 ·5 |
| 35 27 ·01 | 6 ·55 | 1 ·01 | 4 50 50 ·3 | 65 ·0 | 15 ·1 | 15 ·7 |
| 37 2 ·66 | 6 ·42 | 1 ·02 | 5 16 43 ·9 | 64 ·4 | 15 ·3 | 15 ·9 |
| 39 35 ·12 | 6 ·28 | 1 ·04 | 5 42 21 ·9 | 63 ·7 | 15 ·5 | 16 ·2 |
| 41 4 ·27 | 6 ·14 | 1 ·06 | 6 7 43 ·0 | 63 ·0 | 15 ·8 | 16 ·4 |
| 43 29 ·98 | 5 ·99 | 1 ·07 | 6 32 46 ·2 | 62 ·2 | 16 ·0 | 16 ·6 |
| 45 52 ·13 | 5 ·84 | 1 ·09 | 6 57 30 ·5 | 61 ·4 | 16 ·3 | 16 ·9 |
| 47 10 ·57 | 5 ·69 | 1 ·10 | 7 21 54 ·7 | 60 ·6 | 16 ·5 | 17 ·1 |
| 49 25 ·16 | 5 ·53 | 1 ·12 | 7 45 57 ·9 | 59 ·7 | 16 ·7 | 17 ·4 |
| 51 35 ·76 | 5 ·36 | 1 ·14 | 8 9 38 ·6 | 58 ·7 | 17 ·0 | 17 ·7 |
| 53 42 ·21 | 5 ·18 | 1 ·16 | 8 32 55 ·6 | 57 ·7 | 17 ·2 | 17 ·9 |
| 55 44 ·36 | 5 ·00 | 1 ·18 | 8 55 47 ·9 | 56 ·6 | 17 ·5 | 18 ·2 |
| 57 42 ·06 | 4 ·81 | 1 ·20 | 9 18 14 ·4 | 55 ·5 | 17 ·8 | 18 ·5 |
| 59 35 ·13 | 4 ·61 | 1 ·22 | 9 40 13 ·5 | 54 ·4 | 18 ·1 | 18 ·8 |
| 61 23 ·41 | 4 ·41 | 1 ·24 | 10 1 44 ·1 | 53 ·2 | 18 ·4 | 19 ·1 |
| 63 6 ·70 | 4 ·20 | 1 ·26 | 10 22 44 ·6 | 51 ·9 | 18 ·6 | 19 ·4 |
| 64 44 ·84 | 3 ·98 | 1 ·28 | 10 43 13 ·5 | 50 ·5 | 18 ·9 | 19 ·7 |
| 66 17 ·62 | 3 ·75 | 1 ·30 | 11 3 9 ·3 | 49 ·1 | 19 ·2 | 20 ·0 |
| 67 44 ·87 | + 3 ·52 | 1 ·32 | S. 11 22 30 ·1 | —47 ·6 | 19 ·5 | 20 ·3 |

# SEPTEMBER, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | R |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 12 53 37·01 | S. 11 20 43·7 | 9·6264298 | 2 13·6 | 317 13 31·9 | S. 2 59 47·6 | 9·8 |
| 2 | 12 54 59·19 | 11 39 33·6 | ·6194421 | 2 11·0 | 318 48 28·3 | 3 2 21·4 | ·8 |
| 3 | 12 56 15·42 | 11 57 45·1 | ·6124309 | 2 8·3 | 320 23 25·5 | 3 4 46·9 | ·8 |
| 4 | 12 57 25·48 | 12 15 16·5 | ·6054012 | 2 5·5 | 321 58 23·6 | 3 7 4·0 | ·8 |
| 5 | 12 58 29·17 | 12 32 5·8 | ·5983589 | 2 2·6 | 323 33 22·5 | 3 9 12·5 | ·8 |
| 6 | 12 59 26·24 | 12 48 10·8 | ·5913099 | 1 59·6 | 325 8 22·2 | 3 11 12·4 | ·8 |
| 7 | 13 0 16·49 | 13 3 29·2 | ·5842618 | 1 56·6 | 326 43 22·9 | 3 13 3·6 | ·8 |
| 8 | 13 0 59·69 | 13 17 58·6 | ·5772221 | 1 53·3 | 328 18 24·6 | 3 14 45·9 | ·8 |
| 9 | 13 1 35·63 | 13 31 36·8 | ·5701991 | 1 49·9 | 329 53 27·3 | 3 16 19·4 | ·8 |
| 10 | 13 2 4·10 | 13 44 20·9 | ·5632025 | 1 46·5 | 331 28 31·1 | 3 17 43·8 | ·8 |
| 11 | 13 2 24·89 | 13 56 8·3 | ·5562431 | 1 42·9 | 333 3 35·9 | 3 18 59·3 | ·8 |
| 12 | 13 2 37·82 | 14 6 56·1 | ·5493324 | 1 39·2 | 334 38 41·9 | 3 20 5·6 | ·8 |
| 13 | 13 2 42·72 | 14 16 41·8 | ·5424828 | 1 35·3 | 336 13 49·1 | 3 21 2·8 | ·8 |
| 14 | 13 2 39·42 | 14 25 22·3 | ·5357076 | 1 31·3 | 337 48 57·5 | 3 21 50·7 | ·8 |
| 15 | 13 2 27·81 | 14 32 55·1 | ·5290216 | 1 27·2 | 339 24 7·0 | 3 22 29·5 | ·8 |
| 16 | 13 2 7·78 | 14 39 16·8 | ·5224401 | 1 22·9 | 340 59 17·9 | 3 22 58·9 | ·8 |
| 17 | 13 1 39·28 | 14 44 24·7 | ·5159804 | 1 18·4 | 342 34 29·9 | 3 23 19·0 | ·8 |
| 18 | 13 1 2·30 | 14 48 15·9 | ·5096606 | 1 13·8 | 344 9 43·2 | 3 23 29·8 | ·8 |
| 19 | 13 0 16·87 | 14 50 48·1 | ·5034998 | 1 9·2 | 345 44 57·7 | 3 23 31·3 | ·8 |
| 20 | 12 59 23·07 | 14 51 58·6 | ·4975174 | 1 4·3 | 347 20 13·5 | 3 23 23·4 | ·8 |
| 21 | 12 58 21·04 | 14 51 45·1 | ·4917340 | 0 59·3 | 348 55 30·5 | 3 23 6·2 | ·8 |
| 22 | 12 57 10·99 | 14 50 5·7 | ·4861705 | 0 54·3 | 350 30 48·8 | 3 22 39·5 | ·8 |
| 23 | 12 55 53·18 | 14 46 58·8 | ·4808486 | 0 49·1 | 352 6 8·4 | 3 22 3·6 | ·8 |
| 24 | 12 54 27·94 | 14 42 23·3 | ·4757902 | 0 43·8 | 353 41 29·4 | 3 21 18·3 | ·8 |
| 25 | 12 52 55·69 | 14 36 18·6 | ·4710173 | 0 38·3 | 355 16 51·7 | 3 20 23·8 | ·8 |
| 26 | 12 51 16·88 | 14 28 44·3 | ·4665507 | 0 32·7 | 356 52 15·5 | 3 19 20·1 | ·8 |
| 27 | 12 49 32·05 | 14 19 40·7 | ·4624117 | 0 27·0 | 358 27 40·8 | 3 18 7·1 | ·8 |
| 28 | 12 47 41·81 | 14 9 9·0 | ·4586209 | 0 21·3 | 0 3 7·5 | [illegible] | |
| 29 | 12 45 46·82 | 13 57 11·0 | ·4551975 | 0 15·4 | 1 38 35·[illegible] | | |
| 30 | 12 43 47·79 | 13 43 49·2 | ·4521593 | 0 9·5 | 3 14 5· | | |
| 31 | 12 41 45·49 | S. 13 29 6·7 | 9·4495221 | {0 3·6 / 23 57·6} | 4 49 | | |

# SEPTEMBER, 1839.

At Transit over the Meridian of Greenwich.

| | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|---|
| | h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| | 12 53 44 ·87 | + 3 ·52 | 1 ·32 | S. 11 22 30 ·1 | —47 ·6 | 19 ·5 | 20 ·3 |
| | 12 55 6 ·37 | 3 ·27 | 1 ·35 | 11 41 14 ·5 | 46 ·0 | 19 ·9 | 20 ·6 |
| | 12 56 21 ·92 | 3 ·02 | 1 ·37 | 11 59 20 ·4 | 44 ·4 | 20 ·1 | 20 ·9 |
| | 12 57 31 ·30 | 2 ·76 | 1 ·39 | 12 16 46 ·2 | 42 ·7 | 20 ·5 | 21 ·3 |
| | 12 58 34 ·30 | 2 ·49 | 1 ·41 | 12 33 29 ·7 | 40 ·8 | 20 ·8 | 21 ·7 |
| | 12 59 30 ·69 | 2 ·21 | 1 ·44 | 12 49 28 ·8 | 38 ·9 | 21 ·2 | 22 ·0 |
| | 13 0 20 ·26 | 1 ·92 | 1 ·46 | 13 4 41 ·3 | 37 ·0 | 21 ·5 | 22 ·4 |
| | 13 1 2 ·78 | 1 ·62 | 1 ·49 | 13 19 4 ·7 | 34 ·9 | 21 ·9 | 22 ·7 |
| | 13 1 38 ·06 | 1 ·32 | 1 ·51 | 13 32 36 ·9 | 32 ·7 | 22 ·2 | 23 ·1 |
| | 13 2 5 ·90 | 1 ·00 | 1 ·54 | 13 45 15 ·1 | 30 ·4 | 22 ·6 | 23 ·5 |
| | 13 2 26 ·07 | 0 ·68 | 1 ·56 | 13 56 56 ·5 | 28 ·0 | 22 ·9 | 23 ·8 |
| | 13 2 38 ·41 | 0 ·35 | 1 ·59 | 14 7 38 ·4 | 25 ·5 | 23 ·3 | 24 ·2 |
| | 13 2 42 ·76 | + 0 ·01 | 1 ·62 | 14 17 18 ·3 | 22 ·8 | 23 ·7 | 24 ·6 |
| | 13 2 38 ·94 | — 0 ·33 | 1 ·64 | 14 25 53 ·0 | 20 ·0 | 24 ·1 | 25 ·0 |
| | 13 2 26 ·85 | 0 ·68 | 1 ·67 | 14 33 20 ·2 | 17 ·2 | 24 ·4 | 25 ·4 |
| | 13 2 6 ·38 | 1 ·03 | 1 ·70 | 14 39 36 ·6 | 14 ·2 | 24 ·8 | 25 ·8 |
| | 13 1 37 ·49 | 1 ·38 | 1 ·73 | 14 44 39 ·4 | 11 ·0 | 25 ·2 | 26 ·2 |
| | 13 1 0 ·18 | 1 ·73 | 1 ·76 | 14 48 25 ·8 | 7 ·8 | 25 ·5 | 26 ·5 |
| | 13 0 14 ·48 | 2 ·08 | 1 ·79 | 14 50 53 ·4 | 4 ·5 | 25 ·9 | 26 ·9 |
| | 12 59 20 ·48 | 2 ·42 | 1 ·82 | 14 51 59 ·8 | — 1 ·0 | 26 ·3 | 27 ·3 |
| | 12 58 18 ·32 | 2 ·76 | 1 ·84 | 14 51 42 ·7 | + 2 ·5 | 26 ·6 | 27 ·6 |
| | 12 57 8 ·20 | 3 ·08 | 1 ·86 | 14 50 0 ·3 | 6 ·1 | 26 ·9 | 28 ·0 |
| | 12 55 50 ·40 | 3 ·39 | 1 ·88 | 14 46 51 ·0 | 9 ·7 | 27 ·3 | 28 ·3 |
| | 12 54 25 ·24 | 3 ·69 | 1 ·90 | 14 42 13 ·7 | 13 ·4 | 27 ·6 | 28 ·7 |
| | 12 52 53 ·15 | 3 ·97 | 1 ·92 | 14 36 7 ·8 | 17 ·1 | 27 ·9 | 29 ·0 |
| | 12 51 14 ·57 | 4 ·23 | 1 ·93 | 14 28 32 ·9 | 20 ·8 | 28 ·2 | 29 ·3 |
| | 12 49 30 ·03 | 4 ·47 | 1 ·95 | 14 19 29 ·5 | 24 ·5 | 28 ·4 | 29 ·5 |
| | | 4 ·68 | 1 ·96 | 14 8 58 ·9 | 28 ·1 | 28 ·7 | 29 ·8 |
| | | 4 ·86 | 1 ·98 | 13 57 2 ·8 | 31 ·6 | 28 ·9 | 30 ·1 |
| | | 5 ·01 | 1 ·99 | 13 43 43 ·6 | 35 ·0 | 29 ·1 | 30 ·3 |
| | | | | S. {13 29 4 ·8 / 13 13 9 ·0} | + {36 ·2 / 41 ·3} | {29 ·2 / 29 ·3} | {30·4 / 30·5} |

# OCTOBER, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | |
|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ |
| 1 | 12 41 45·49 | S. 13 29 6·7 | 9·4495221 | {0 3·6 / 22 57·6} | 4 49 36·2 | S. 3 11 44·0 |
| 2 | 12 39 40·70 | 13 13 7·4 | ·4473006 | 23 51·6 | 6 25 8·6 | 3 9 45·8 |
| 3 | 12 37 34·23 | 12 55 55·6 | ·4455069 | 23 45·6 | 8 0 42·5 | 3 7 38·8 |
| 4 | 12 35 26·95 | 12 37 36·8 | ·4441512 | 23 39·5 | 9 36 17·7 | 3 5 23·1 |
| 5 | 12 33 19·73 | 12 18 16·9 | ·4432409 | 23 33·4 | 11 11 54·4 | 3 2 58·8 |
| 6 | 12 31 13·44 | 11 58 2·3 | ·4427805 | 23 27·4 | 12 47 32·6 | 3 0 25·9 |
| 7 | 12 29 8·94 | 11 37 0·1 | ·4427715 | 23 21·5 | 14 23 12·2 | 2 57 44·6 |
| 8 | 12 27 7·04 | 11 15 17·5 | ·4432144 | 23 15·6 | 15 58 53·3 | 2 54 55·0 |
| 9 | 12 25 8·53 | 10 53 2·0 | ·4441062 | 23 9·8 | 17 34 36·0 | 2 51 57·2 |
| 10 | 12 23 14·21 | 10 30 21·9 | ·4454409 | 23 4·0 | 19 10 20·2 | 2 48 51·4 |
| 11 | 12 21 24·83 | 10 7 25·3 | ·4472095 | 22 58·4 | 20 46 6·0 | 2 45 37·7 |
| 12 | 12 19 41·05 | 9 44 20·0 | ·4494015 | 22 52·9 | 22 21 53·4 | 2 42 16·2 |
| 13 | 12 18 3·47 | 9 21 13·5 | ·4520040 | 22 47·4 | 23 57 42·4 | 2 38 47·0 |
| 14 | 12 16 32·66 | 8 58 13·8 | ·4550024 | 22 42·1 | 25 33 32·9 | 2 35 10·4 |
| 15 | 12 15 9·10 | 8 35 28·2 | ·4583804 | 22 36·9 | 27 9 25·1 | 2 31 26·5 |
| 16 | 12 13 53·26 | 8 13 3·9 | ·4621195 | 22 31·8 | 28 45 18·8 | 2 27 35·4 |
| 17 | 12 12 45·52 | 7 51 7·4 | ·4661999 | 22 26·9 | 30 21 14·1 | 2 23 37·3 |
| 18 | 12 11 46·20 | 7 29 45·2 | ·4706014 | 22 22·1 | 31 57 11·0 | 2 19 32·5 |
| 19 | 12 10 55·52 | 7 9 2·8 | ·4753031 | 22 17·5 | 33 33 9·4 | 2 15 21·1 |
| 20 | 12 10 13·68 | 6 49 5·3 | ·4802840 | 22 13·1 | 35 9 9·5 | 2 11 3·2 |
| 21 | 12 9 40·81 | 6 29 56·9 | ·4855227 | 22 8·8 | 36 45 11·1 | 2 6 39·1 |
| 22 | 12 9 17·02 | 6 11 41·8 | ·4909973 | 22 4·5 | 38 21 14·4 | 2 2 9·0 |
| 23 | 12 9 2·34 | 5 54 23·6 | ·4966860 | 22 0·5 | 39 57 19·4 | 1 57 33·1 |
| 24 | 12 8 56·74 | 5 38 5·0 | ·5025682 | 21 56·6 | 41 33 26·1 | 1 52 51·5 |
| 25 | 12 9 0·14 | 5 22 47·9 | ·5086242 | 21 52·8 | 43 9 34·5 | 1 48 4·6 |
| 26 | 12 9 12·46 | 5 8 34·5 | ·5148340 | 21 49·3 | 44 45 44·7 | 1 43 12·4 |
| 27 | 12 9 33·58 | 4 55 26·2 | ·5211790 | 21 45·9 | 46 21 56·5 | 1 38 15·4 |
| 28 | 12 10 3·34 | 4 43 23·7 | ·5276415 | 21 42·5 | 47 58 10·0 | 1 33 13·6 |
| 29 | 12 10 41·55 | 4 32 27·2 | ·5342054 | 21 39·3 | 49 34 25·2 | 1 28 7·3 |
| 30 | 12 11 28·01 | 4 22 37·2 | ·5408544 | 21 36·2 | 51 10 42·1 | 1 22 56·7 |
| 31 | 12 12 22·53 | 4 13 53·6 | ·5475736 | 21 33·3 | 52 47 0·6 | 1 17 42·1 |
| | 12 13 24·85 | S. 4 6 15·8 | 9·5543497 | 21 30·6 | 54 23 20·9 | S. 1 12 23·8 |

# OCTOBER, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| {12 41 45 ·10 / 12 39 40 ·91} | − {5 ·18 / 5 ·21} | {2 ·00 / 2 ·01} | S. {13 29 4 ·3 / 13 13 9 ·6} | + {38 ·2 / 41 ·3} | {29 ·2 / 29 ·3} | {30 ·4 / 30 ·5} |
| 12 37 34 ·97 | 5 ·26 | 2 ·01 | 12 56 1 ·7 | 44 ·2 | 29 ·4 | 30 ·7 |
| 12 35 28 ·22 | 5 ·28 | 2 ·01 | 12 37 48 ·0 | 46 ·8 | 29 ·6 | 30 ·8 |
| 12 33 21 ·54 | 5 ·26 | 2 ·02 | 12 18 33 ·7 | 49 ·2 | 29 ·7 | 30 ·9 |
| 12 31 15 ·76 | 5 ·20 | 2 ·02 | 11 58 25 ·0 | 51 ·4 | 29 ·8 | 30 ·9 |
| 12 29 11 ·73 | 5 ·11 | 2 ·02 | 11 37 28 ·9 | 53 ·2 | 29 ·7 | 30 ·8 |
| 12 27 10 ·27 | 4 ·99 | 2 ·01 | 11 15 52 ·7 | 54 ·7 | 29 ·6 | 30 ·8 |
| 12 25 12 ·14 | 4 ·84 | 2 ·01 | 10 53 43 ·6 | 55 ·9 | 29 ·6 | 30 ·7 |
| 12 23 18 ·13 | 4 ·65 | 2 ·00 | 10 31 9 ·7 | 56 ·8 | 29 ·5 | 30 ·7 |
| 12 21 28 ·99 | 4 ·43 | 1 ·99 | 10 8 19 ·0 | 57 ·3 | 29 ·5 | 30 ·6 |
| 12 19 45 ·37 | 4 ·19 | 1 ·98 | 9 45 19 ·3 | 57 ·5 | 29 ·4 | 30 ·4 |
| 12 18 7 ·87 | 3 ·92 | 1 ·96 | 9 22 18 ·0 | 57 ·4 | 29 ·2 | 30 ·2 |
| 12 16 37 ·07 | 3 ·63 | 1 ·95 | 8 59 23 ·1 | 57 ·0 | 29 ·0 | 30 ·0 |
| 12 15 13 ·42 | 3 ·33 | 1 ·93 | 8 36 41 ·7 | 56 ·3 | 28 ·8 | 29 ·8 |
| 12 13 57 ·41 | 3 ·00 | 1 ·92 | 8 14 20 ·9 | 55 ·3 | 28 ·5 | 29 ·6 |
| 12 12 49 ·43 | 2 ·66 | 1 ·90 | 7 52 27 ·3 | 54 ·1 | 28 ·2 | 29 ·3 |
| 12 11 49 ·78 | 2 ·31 | 1 ·88 | 7 31 7 ·1 | 52 ·6 | 27 ·9 | 29 ·0 |
| 12 10 58 ·69 | 1 ·95 | 1 ·86 | 7 10 26 ·0 | 50 ·8 | 27 ·6 | 28 ·7 |
| 12 10 16 ·37 | 1 ·58 | 1 ·83 | 6 50 29 ·0 | 48 ·9 | 27 ·3 | 28 ·4 |
| 12 9 42 ·94 | 1 ·21 | 1 ·81 | 6 31 20 ·8 | 46 ·8 | 27 ·0 | 28 ·1 |
| 12 9 18 ·53 | 0 ·83 | 1 ·79 | 6 13 4 ·8 | 44 ·5 | 26 ·7 | 27 ·7 |
| 12 9 3 ·18 | 0 ·45 | 1 ·77 | 5 55 44 ·7 | 42 ·1 | 26 ·4 | 27 ·3 |
| 12 8 56 ·85 | − 0 ·08 | 1 ·75 | 5 39 23 ·9 | 39 ·6 | 26 ·0 | 27 ·0 |
| 12 8 59 ·48 | + 0 ·29 | 1 ·72 | 5 24 4 ·0 | 37 ·0 | 25 ·6 | 26 ·7 |
| 12 9 11 ·00 | 0 ·66 | 1 ·70 | 5 9 47 ·2 | 34 ·4 | 25 ·2 | 26 ·3 |
| 12 9 31 ·29 | 1 ·02 | 1 ·67 | 4 56 35 ·0 | 31 ·7 | 24 ·9 | 25 ·9 |
| 12 10 0 ·20 | 1 ·38 | 1 ·64 | 4 44 28 ·2 | 28 ·9 | 24 ·5 | 25 ·5 |
| 12 10 37 ·55 | 1 ·73 | 1 ·62 | 4 33 27 ·1 | 26 ·2 | 24 ·2 | 25 ·1 |
| 12 11 23 ·12 | 2 ·07 | 1 ·59 | 4 23 32 ·0 | 23 ·4 | 23 ·8 | 24 ·8 |
| 12 12 16 ·74 | 2 ·40 | 1 ·57 | 4 14 43 ·0 | 20 ·7 | 23 ·4 | 24 ·3 |
| 12 13 18 ·15 | 2 ·72 | 1 ·54 | 4 6 59 ·5 | 18 ·0 | 23 ·1 | 24 ·0 |
| [illegible] | 2 ·03 | 1 ·51 | S. 4 0 20 ·7 | + 15 ·3 | 22 ·7 | 23 ·6 |

# NOVEMBER, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | R |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 12 13 24·85 | S. 4 6 15·8 | 9·5543497 | 21 30·6 | 54 23 20·9 | S. 1 12 23·8 | 9· |
| 2 | 12 14 34·73 | 3 59 42·9 | ·5611708 | 21 28·0 | 55 59 42·9 | 1 7 1·9 | ·8 |
| 3 | 12 15 51·94 | 3 54 14·2 | ·5680251 | 21 25·4 | 57 36 6·7 | 1 1 36·7 | ·8 |
| 4 | 12 17 16·24 | 3 49 48·7 | ·5749021 | 21 23·0 | 59 12 32·2 | 0 56 8·6 | ·8 |
| 5 | 12 18 47·38 | 3 46 25·2 | ·5817926 | 21 20·7 | 60 48 59·5 | 0 50 37·6 | ·8 |
| 6 | 12 20 25·12 | 3 44 2·4 | ·5886882 | 21 18·4 | 62 25 28·7 | 0 45 4·1 | ·8 |
| 7 | 12 22 9·21 | 3 42 38·9 | ·5955809 | 21 16·3 | 64 1 59·6 | 0 39 28·4 | ·8 |
| 8 | 12 23 59·42 | 3 42 13·2 | ·6024639 | 21 14·3 | 65 38 32·4 | 0 33 50·7 | ·8 |
| 9 | 12 25 55·53 | 3 42 43·8 | ·6093310 | 21 12·3 | 67 15 7·0 | 0 28 11·2 | ·8 |
| 10 | 12 27 57·30 | 3 44 9·3 | ·6161770 | 21 10·5 | 68 51 43·4 | 0 22 30·4 | ·8 |
| 11 | 12 30 4·53 | 3 46 28·2 | ·6229963 | 21 8·9 | 70 28 21·6 | 0 16 48·3 | ·8 |
| 12 | 12 32 17·01 | 3 49 38·8 | ·6297851 | 21 7·3 | 72 5 1·6 | 0 11 5·3 | ·8 |
| 13 | 12 34 34·54 | 3 53 39·5 | ·6365390 | 21 5·7 | 73 41 43·4 | S. 0 5 21·7 | ·8 |
| 14 | 12 36 56·94 | 3 58 29·0 | ·6432548 | 21 4·1 | 75 18 26·9 | N. 0 0 22·2 | ·8 |
| 15 | 12 39 24·01 | 4 4 5·5 | ·6499287 | 21 2·6 | 76 55 12·1 | 0 6 6·3 | ·8 |
| 16 | 12 41 55·60 | 4 10 27·5 | ·6565583 | 21 1·2 | 78 31 59·1 | 0 11 50·2 | ·8 |
| 17 | 12 44 31·53 | 4 17 33·5 | ·6631409 | 20 59·9 | 80 8 47·9 | 0 17 33·6 | ·8 |
| 18 | 12 47 11·67 | 4 25 22·0 | ·6696743 | 20 58·7 | 81 45 38·4 | 0 23 16·2 | ·8 |
| 19 | 12 49 55·86 | 4 33 51·5 | ·6761564 | 20 57·5 | 83 22 30·7 | 0 28 57·9 | ·8 |
| 20 | 12 52 43·97 | 4 43 0·4 | ·6825857 | 20 56·4 | 84 59 24·8 | 0 34 38·2 | ·8 |
| 21 | 12 55 35·84 | 4 52 47·3 | ·6889602 | 20 55·5 | 86 36 20·7 | 0 40 17·0 | ·8 |
| 22 | 12 58 31·37 | 5 3 10·6 | ·6952785 | 20 54·6 | 88 13 18·4 | 0 45 53·9 | ·8 |
| 23 | 13 1 30·40 | 5 14 8·7 | ·7015392 | 20 53·7 | 89 50 17·9 | 0 51 28·8 | ·8 |
| 24 | 13 4 32·83 | 5 25 40·2 | ·7077412 | 20 52·8 | 91 27 19·0 | 0 57 1·3 | ·8 |
| 25 | 13 7 38·53 | 5 37 43·6 | ·7138837 | 20 52·0 | 93 4 21·8 | 1 2 31·1 | ·8 |
| 26 | 13 10 47·41 | 5 50 17·3 | ·7199657 | 20 51·2 | 94 41 26·2 | 1 7 58·0 | ·8 |
| 27 | 13 13 59·36 | 6 3 19·9 | ·7259868 | 20 50·5 | 96 18 32·2 | 1 13 21·7 | ·8 |
| 28 | 13 17 14·28 | 6 16 49·9 | ·7319464 | 20 49·9 | 97 55 39·7 | 1 18 42·0 | ·8 |
| 29 | 13 20 32·07 | 6 30 45·9 | ·7378443 | 20 49·3 | 99 32 48·8 | 1 23 58·6 | ·8 |
| 30 | 13 23 52·64 | 6 45 6·4 | ·7436803 | 20 48·7 | 101 9 59·3 | 1 29 11·2 | ·8 |
| 31 | 13 27 15·91 | S. 6 59 49·9 | 9·7494544 | 20 48·2 | 102 47 11·5 | N. 1 34 | |

# NOVEMBER, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 12 14 27 ·12 | + 3 ·03 | 1 ·51 | S. 4 0 20 ·7 | + 15 ·3 | 22 ·7 | 23 ·6 |
| 12 15 43 ·43 | 3 ·33 | 1 ·49 | 3 54 45 ·9 | 12 ·6 | 22 ·4 | 23 ·2 |
| 12 17 6 ·84 | 3 ·62 | 1 ·46 | 3 50 14 ·1 | 10 ·0 | 22 ·0 | 22 ·9 |
| 12 18 37 ·11 | 3 ·90 | 1 ·44 | 3 46 44 ·4 | 7 ·5 | 21 ·6 | 22 ·5 |
| 12 20 13 ·99 | 4 ·17 | 1 ·41 | 3 44 15 ·3 | 5 ·0 | 21 ·2 | 22 ·2 |
| 12 21 57 ·22 | 4 ·43 | 1 ·39 | 3 42 45 ·4 | 2 ·6 | 20 ·9 | 21 ·8 |
| 12 23 46 ·59 | 4 ·68 | 1 ·37 | 3 42 13 ·3 | + 0 ·2 | 20 ·6 | 21 ·5 |
| 12 25 41 ·88 | 4 ·92 | 1 ·35 | 3 42 37 ·5 | — 2 ·2 | 20 ·3 | 21 ·1 |
| 12 27 42 ·84 | 5 ·15 | 1 ·33 | 3 43 56 ·6 | 4 ·4 | 20 ·0 | 20 ·8 |
| 12 29 49 ·28 | 5 ·38 | 1 ·31 | 3 46 9 ·1 | 6 ·6 | 19 ·7 | 20 ·5 |
| 12 32 0 ·99 | 5 ·59 | 1 ·29 | 3 49 13 ·4 | 8 ·7 | 19 ·4 | 20 ·2 |
| 12 34 17 ·77 | 5 ·80 | 1 ·27 | 3 53 8 ·0 | 10 ·8 | 19 ·1 | 19 ·9 |
| 12 36 39 ·44 | 6 ·00 | 1 ·25 | 3 57 51 ·4 | 12 ·8 | 18 ·8 | 19 ·6 |
| 12 39 5 ·80 | 6 ·19 | 1 ·23 | 4 3 21 ·9 | 14 ·7 | 18 ·5 | 19 ·2 |
| 12 41 36 ·69 | 6 ·38 | 1 ·21 | 4 9 38 ·0 | 16 ·6 | 18 ·2 | 18 ·9 |
| 12 44 11 ·94 | 6 ·56 | 1 ·20 | 4 16 38 ·3 | 18 ·4 | 18 ·0 | 18 ·7 |
| 12 46 51 ·42 | 6 ·73 | 1 ·18 | 4 24 21 ·2 | 20 ·1 | 17 ·7 | 18 ·4 |
| 12 49 34 ·97 | 6 ·90 | 1 ·17 | 4 32 45 ·2 | 21 ·8 | 17 ·5 | 18 ·1 |
| 12 52 22 ·46 | 7 ·06 | 1 ·15 | 4 41 48 ·7 | 23 ·4 | 17 ·2 | 17 ·9 |
| 12 55 13 ·73 | 7 ·21 | 1 ·13 | 4 51 30 ·4 | 25 ·0 | 16 ·9 | 17 ·6 |
| 12 58 8 ·68 | 7 ·36 | 1 ·11 | 5 1 48 ·7 | 26 ·5 | 16 ·7 | 17 ·4 |
| 13 1 7 ·15 | 7 ·51 | 1 ·09 | 5 12 41 ·9 | 27 ·9 | 16 ·4 | 17 ·1 |
| 13 4 9 ·04 | 7 ·65 | 1 ·08 | 5 24 8 ·7 | 29 ·3 | 16 ·2 | 16 ·9 |
| 13 7 14 ·21 | 7 ·78 | 1 ·07 | 5 36 7 ·7 | 30 ·6 | 16 ·0 | 16 ·6 |
| 13 10 22 ·57 | 7 ·91 | 1 ·06 | 5 48 37 ·1 | 31 ·8 | 15 ·8 | 16 ·4 |
| 13 13 34 ·02 | 8 ·04 | 1 ·04 | 6 1 35 ·6 | 33 ·0 | 15 ·6 | 16 ·2 |
| 13 16 48 ·47 | 8 ·16 | 1 ·02 | 6 15 1 ·8 | 34 ·1 | 15 ·3 | 15 ·9 |
| 13 20 5 ·80 | 8 ·28 | 1 ·01 | 6 28 54 ·1 | 35 ·2 | 15 ·1 | 15 ·7 |
| 13 23 25 ·93 | 8 ·40 | 1 ·00 | 6 43 11 ·1 | 36 ·2 | 14 ·9 | 15 ·5 |
| 26 48 ·77 | 8 ·51 | 0 ·99 | 6 57 51 ·2 | 37 ·1 | 14 ·7 | 15 ·3 |
| | 8 ·61 | 0 ·97 | S. 7 12 53 ·3 | — 38 ·0 | 14 ·5 | 15 ·1 |

# DECEMBER, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | R |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 13 27 15·91 | S. 6 59 49·9 | 9·7494544 | 20 48·2 | 102 47 11·5 | N. 1 34 19·6 | 9· |
| 2 | 13 30 41·79 | 7 14 55·1 | ·7551666 | 20 47·7 | 104 24 25·0 | 1 39 23·5 | · |
| 3 | 13 34 10·21 | 7 30 20·6 | ·7608171 | 20 47·3 | 106 1 40·0 | 1 44 22·7 | · |
| 4 | 13 37 41·10 | 7 46 5·0 | ·7664064 | 20 46·9 | 107 38 56·4 | 1 49 17·0 | · |
| 5 | 13 41 14·37 | 8 2 7·0 | ·7719348 | 20 46·5 | 109 16 14·2 | 1 54 6·0 | · |
| 6 | 13 44 49·98 | 8 18 25·3 | ·7774029 | 20 46·2 | 110 53 33·4 | 1 58 49·6 | · |
| 7 | 13 48 27·87 | 8 34 58·6 | ·7828112 | 20 46·0 | 112 30 53·7 | 2 3 27·5 | · |
| 8 | 13 52 7·98 | 8 51 45·7 | ·7881605 | 20 45·8 | 114 8 15·3 | 2 7 59·5 | · |
| 9 | 13 55 50·26 | 9 8 45·3 | ·7934513 | 20 45·5 | 115 45 38·1 | 2 12 25·4 | · |
| 10 | 13 59 34·67 | 9 25 56·3 | ·7986845 | 20 45·4 | 117 23 1·9 | 2 16 45·0 | · |
| 11 | 14 3 21·16 | 9 43 17·5 | ·8038608 | 20 45·3 | 119 0 26·7 | 2 20 57·9 | · |
| 12 | 14 7 9·70 | 10 0 47·7 | ·8089808 | 20 45·1 | 120 37 52·5 | 2 25 4·2 | · |
| 13 | 14 11 0·27 | 10 18 25·8 | ·8140453 | 20 45·0 | 122 15 19·1 | 2 29 3·4 | · |
| 14 | 14 14 52·83 | 10 36 10·6 | ·8190551 | 20 44·9 | 123 52 46·6 | 2 32 55·5 | · |
| 15 | 14 18 47·35 | 10 54 1·1 | ·8240109 | 20 44·9 | 125 30 14·9 | 2 36 40·2 | · |
| 16 | 14 22 43·82 | 11 11 56·2 | ·8289130 | 20 45·0 | 127 7 43·9 | 2 40 17·4 | · |
| 17 | 14 26 42·21 | 11 29 54·7 | ·8337622 | 20 45·1 | 128 45 13·5 | 2 43 46·9 | · |
| 18 | 14 30 42·51 | 11 47 55·7 | ·8385591 | 20 45·2 | 130 22 43·8 | 2 47 8·5 | · |
| 19 | 14 34 44·71 | 12 5 58·0 | ·8433042 | 20 45·3 | 132 0 14·7 | 2 50 22·0 | · |
| 20 | 14 38 48·77 | 12 24 0·7 | ·8479981 | 20 45·5 | 133 37 46·0 | 2 53 27·3 | · |
| 21 | 14 42 54·69 | 12 42 2·5 | ·8526412 | 20 45·6 | 135 15 17·6 | 2 56 24·2 | · |
| 22 | 14 47 2·45 | 13 0 2·5 | ·8572342 | 20 45·8 | 136 52 49·4 | 2 59 12·6 | · |
| 23 | 14 51 12·03 | 13 17 59·6 | ·8617774 | 20 46·0 | 138 30 21·4 | 3 1 52·4 | · |
| 24 | 14 55 23·41 | 13 35 52·7 | ·8662713 | 20 46·3 | 140 7 53·5 | 3 4 23·4 | · |
| 25 | 14 59 36·58 | 13 53 40·7 | ·8707162 | 20 46·6 | 141 45 25·5 | 3 6 45·5 | · |
| 26 | 15 3 51·53 | 14 11 22·6 | ·8751125 | 20 46·9 | 143 22 57·4 | 3 8 58·6 | · |
| 27 | 15 8 8·23 | 14 28 57·3 | ·8794609 | 20 47·3 | 145 0 29·1 | 3 11 2·6 | · |
| 28 | 15 12 26·67 | 14 46 23·7 | ·8837618 | 20 47·7 | 146 38 0·6 | 3 12 57·3 | · |
| 29 | 15 16 46·82 | 15 3 41·0 | ·8880157 | 20 48·1 | 148 15 31·8 | 3 14 42 | |
| 30 | 15 21 8·68 | 15 20 48·0 | ·8922233 | 20 48·5 | 149 53 2·6 | 3 16 11 | |
| 31 | 15 25 32·22 | 15 37 43·8 | ·8963852 | 20 49·0 | 151 30 33·0 | 3 17 | |
| 32 | 15 29 57·43 | S. 15 54 27·4 | 9·9005020 | 20 49·5 | 153 8 2·9 | N. 3 19 | |

# DECEMBER, 1839.

At Transit over the Meridian of Greenwich.

| MONTH. | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|---|
| | h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| | 13 30 14 ·24 | + 8 ·61 | 0 ·97 | S. 7 12 53 ·3 | —38 ·0 | 14 ·5 | 15 ·1 |
| | 13 33 42 ·26 | 8 ·71 | 0 ·96 | 7 28 15 ·9 | 38 ·8 | 14 ·3 | 14 ·9 |
| | 13 37 12 ·75 | 8 ·82 | 0 ·95 | 7 43 57 ·6 | 39 ·6 | 14 ·1 | 14 ·7 |
| | 13 40 45 ·64 | 8 ·92 | 0 ·94 | 7 59 57 ·0 | 40 ·3 | 14 ·0 | 14 ·5 |
| | 13 44 20 ·88 | 9 ·02 | 0 ·93 | 8 16 12 ·9 | 40 ·9 | 13 ·8 | 14 ·3 |
| | 13 47 58 ·42 | 9 ·11 | 0 ·92 | 8 32 44 ·1 | 41 ·5 | 13 ·6 | 14 ·2 |
| | 13 51 38 ·19 | 9 ·20 | 0 ·91 | 8 49 29 ·2 | 42 ·1 | 13 ·5 | 14 ·0 |
| | 13 55 20 ·14 | 9 ·29 | 0 ·90 | 9 6 27 ·0 | 42 ·7 | 13 ·3 | 13 ·9 |
| | 13 59 4 ·23 | 9 ·38 | 0 ·89 | 9 23 36 ·4 | 43 ·2 | 13 ·1 | 13 ·7 |
| | 14 2 50 ·41 | 9 ·47 | 0 ·88 | 9 40 56 ·2 | 43 ·5 | 13 ·0 | 13 ·5 |
| | 14 6 38 ·65 | 9 ·55 | 0 ·87 | 9 58 25 ·2 | 43 ·9 | 12 ·8 | 13 ·3 |
| | 14 10 28 ·93 | 9 ·64 | 0 ·86 | 10 16 2 ·2 | 44 ·2 | 12 ·7 | 13 ·2 |
| | 14 14 21 ·21 | 9 ·72 | 0 ·85 | 10 33 46 ·1 | 44 ·5 | 12 ·5 | 13 ·0 |
| | 14 18 15 ·46 | 9 ·80 | 0 ·84 | 10 51 35 ·9 | 44 ·7 | 12 ·4 | 12 ·9 |
| | 14 22 11 ·68 | 9 ·88 | 0 ·84 | 11 9 30 ·4 | 44 ·9 | 12 ·3 | 12 ·7 |
| | 14 26 9 ·81 | 9 ·96 | 0 ·83 | 11 27 28 ·5 | 45 ·0 | 12 ·1 | 12 ·6 |
| | 14 30 9 ·86 | 10 ·04 | 0 ·82 | 11 45 29 ·3 | 45 ·1 | 12 ·0 | 12 ·5 |
| | 14 34 11 ·83 | 10 ·12 | 0 ·81 | 12 3 31 ·6 | 45 ·1 | 11 ·8 | 12 ·3 |
| | 14 38 15 ·65 | 10 ·20 | 0 ·80 | 12 21 34 ·4 | 45 ·1 | 11 ·7 | 12 ·2 |
| | 14 42 21 ·34 | 10 ·28 | 0 ·79 | 12 39 36 ·5 | 45 ·1 | 11 ·6 | 12 ·0 |
| | 14 46 28 ·89 | 10 ·36 | 0 ·78 | 12 57 36 ·9 | 45 ·0 | 11 ·5 | 11 ·9 |
| | 14 50 38 ·26 | 10 ·43 | 0 ·77 | 13 15 34 ·5 | 44 ·8 | 11 ·4 | 11 ·8 |
| | 14 54 49 ·44 | 10 ·50 | 0 ·77 | 13 33 28 ·3 | 44 ·6 | 11 ·3 | 11 ·7 |
| | 14 59 2 ·42 | 10 ·58 | 0 ·76 | 13 51 17 ·4 | 44 ·4 | 11 ·2 | 11 ·6 |
| 5 | 15 3 17 ·19 | 10 ·65 | 0 ·75 | 14 9 0 ·5 | 44 ·1 | 11 ·0 | 11 ·4 |
| 6 | 15 7 33 ·72 | 10 ·73 | 0 ·74 | 14 26 36 ·5 | 43 ·8 | 10 ·9 | 11 ·3 |
| 7 | 15 11 51 ·99 | 10 ·80 | 0 ·73 | 14 44 4 ·2 | 43 ·5 | 10 ·8 | 11 ·2 |
| 8 | 15 16 11 ·98 | 10 ·87 | 0 ·73 | 15 1 23 ·1 | 43 ·1 | 10 ·7 | 11 ·1 |
| 9 | 15 20 33 ·69 | 10 ·94 | 0 ·73 | 15 18 31 ·8 | 42 ·6 | 10 ·6 | 11 ·0 |
| 0 | 15 24 57 ·09 | 11 ·01 | 0 ·72 | 15 35 29 ·3 | 42 ·1 | 10 ·5 | 10 ·9 |
| 1 | 15 29 22 ·17 | 11 ·08 | 0 ·72 | 15 52 15 ·0 | 41 ·6 | 10 ·4 | 10 ·8 |
| 2 | 15 33 48 ·88 | +11 ·15 | 0 ·71 | S. 16 8 47 ·6 | —41 ·1 | 10 ·3 | 10 ·7 |

# JANUARY, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | R |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 11 47 16·93 | N.4 24 20·1 | 0·0443424 | 17 3·4 | 140 28 47·9 | N.1 51 1·3 | 0· |
| 2 | 11 48 23·67 | 4 18 38·1 | ·0406588 | 17 0·7 | 140 55 7·8 | 1 50 59·1 | · |
| 3 | 11 49 28·83 | 4 13 6·8 | ·0369526 | 16 57·8 | 141 21 27·2 | 1 50 56·6 | · |
| 4 | 11 50 32·36 | 4 7 46·5 | ·0332243 | 16 54·9 | 141 47 46·0 | 1 50 53·7 | · |
| 5 | 11 51 34·22 | 4 2 37·5 | ·0294743 | 16 51·9 | 142 14 4·3 | 1 50 50·4 | · |
| 6 | 11 52 34·39 | 3 57 40·0 | ·0257031 | 16 49·0 | 142 40 22·2 | 1 50 46·7 | · |
| 7 | 11 53 32·82 | 3 52 54·2 | ·0219113 | 16 46·0 | 143 6 39·6 | 1 50 42·6 | · |
| 8 | 11 54 29·48 | 3 48 20·4 | ·0180997 | 16 43·0 | 143 32 56·5 | 1 50 38·1 | · |
| 9 | 11 55 24·31 | 3 43 58·9 | ·0142691 | 16 39·9 | 143 59 13·1 | 1 50 33·2 | · |
| 10 | 11 56 17·29 | 3 39 49·9 | ·0104202 | 16 36·8 | 144 25 29·3 | 1 50 27·9 | · |
| 11 | 11 57 8·36 | 3 35 53·7 | ·0065540 | 16 33·7 | 144 51 45·3 | 1 50 22·2 | · |
| 12 | 11 57 57·49 | 3 32 10·6 | 0·0026715 | 16 30·6 | 145 18 0·9 | 1 50 16·1 | · |
| 13 | 11 58 44·64 | 3 28 40·8 | 9·9987738 | 16 27·4 | 145 44 16·2 | 1 50 9·6 | · |
| 14 | 11 59 29·77 | 3 25 24·6 | ·9948620 | 16 24·2 | 146 10 31·2 | 1 50 2·8 | · |
| 15 | 12 0 12·83 | 3 22 22·3 | ·9909373 | 16 21·0 | 146 36 45·9 | 1 49 55·5 | · |
| 16 | 12 0 53·78 | 3 19 34·0 | ·9870011 | 16 17·7 | 147 3 0·2 | 1 49 47·9 | · |
| 17 | 12 1 32·58 | 3 17 0·0 | ·9830546 | 16 14·4 | 147 29 14·3 | 1 49 39·9 | · |
| 18 | 12 2 9·19 | 3 14 40·4 | ·9790994 | 16 11·1 | 147 55 28·1 | 1 49 31·5 | · |
| 19 | 12 2 43·58 | 3 12 35·5 | ·9751367 | 16 7·7 | 148 21 41·6 | 1 49 22·8 | · |
| 20 | 12 3 15·71 | 3 10 45·5 | ·9711682 | 16 4·3 | 148 47 54·9 | 1 49 13·6 | · |
| 21 | 12 3 45·54 | 3 9 10·5 | ·9671954 | 16 0·8 | 149 14 8·0 | 1 49 4·1 | · |
| 22 | 12 4 13·04 | 3 7 50·8 | ·9632198 | 15 57·3 | 149 40 21·0 | 1 48 54·2 | · |
| 23 | 12 4 38·17 | 3 6 46·5 | ·9592430 | 15 53·7 | 150 6 33·8 | 1 48 44·0 | · |
| 24 | 12 5 0·89 | 3 5 57·7 | ·9552668 | 15 50·1 | 150 32 46·5 | 1 48 33·4 | · |
| 25 | 12 5 21·16 | 3 5 24·7 | ·9512931 | 15 46·5 | 150 58 59·2 | 1 48 22·5 | · |
| 26 | 12 5 38·95 | 3 5 7·5 | ·9473237 | 15 42·8 | 151 25 11·8 | 1 48 11·1 | · |
| 27 | 12 5 54·22 | 3 5 6·3 | ·9433603 | 15 39·1 | 151 51 24·4 | 1 47 59·4 | · |
| 28 | 12 6 6·92 | 3 5 21·3 | ·9394050 | 15 35·4 | 152 17 36·8 | 1 47 47·3 | · |
| 29 | 12 6 17·01 | 3 5 52·7 | ·93545[illegible] | [illegible] | [illegible] 43 49·2 | 1 47 34·9 | · |
| 30 | 12 6 24·46 | 3 6 40·7 | ·93152[illegible] | [illegible] | [illegible] | 1 47 22·0 | · |
| 31 | 12 6 29·23 | 3 7 45·5 | ·927[illegible] | [illegible] | [illegible] | [illegible] 47 8·8 | · |
| 32 | 12 6 31·27 | N.3 9 7·1 | 9·923[illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

# JANUARY, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 11 48 4 ·52 | + 2 ·77 | 0 ·27 | N.4 20 15 ·9 | —14 ·2 | 4 ·0 | 7 ·8 |
| 11 49 10 ·01 | 2 ·70 | 0 ·27 | 4 14 42 ·2 | 13 ·7 | 4 ·1 | 7 ·9 |
| 11 50 13 ·90 | 2 ·63 | 0 ·27 | 4 9 19 ·3 | 13 ·2 | 4 ·1 | 7 ·9 |
| 11 51 16 ·13 | 2 ·56 | 0 ·27 | 4 4 7 ·6 | 12 ·8 | 4 ·1 | 8 ·0 |
| 11 52 16 ·68 | 2 ·49 | 0 ·28 | 3 59 7 ·2 | 12 ·3 | 4 ·2 | 8 ·1 |
| 11 53 15 ·52 | 2 ·41 | 0 ·28 | 3 54 18 ·5 | 11 ·8 | 4 ·2 | 8 ·1 |
| 11 54 12 ·59 | 2 ·34 | 0 ·28 | 3 49 41 ·6 | 11 ·3 | 4 ·2 | 8 ·2 |
| 11 55 7 ·87 | 2 ·26 | 0 ·29 | 3 45 16 ·9 | 10 ·8 | 4 ·3 | 8 ·3 |
| 11 56 1 ·30 | 2 ·19 | 0 ·29 | 3 41 4 ·6 | 10 ·2 | 4 ·3 | 8 ·3 |
| 11 56 52 ·86 | 2 ·11 | 0 ·29 | 3 37 5 ·0 | 9 ·7 | 4 ·3 | 8 ·4 |
| 11 57 42 ·48 | 2 ·03 | 0 ·29 | 3 33 18 ·3 | 9 ·2 | 4 ·4 | 8 ·5 |
| 11 58 30 ·15 | 1 ·94 | 0 ·30 | 3 29 44 ·9 | 8 ·6 | 4 ·4 | 8 ·6 |
| 11 59 15 ·81 | 1 ·86 | 0 ·30 | 3 26 24 ·8 | 8 ·1 | 4 ·5 | 8 ·7 |
| 11 59 59 ·43 | 1 ·78 | 0 ·30 | 3 23 18 ·4 | 7 ·5 | 4 ·5 | 8 ·7 |
| 12 0 40 ·96 | 1 ·69 | 0 ·30 | 3 20 26 ·1 | 6 ·9 | 4 ·6 | 8 ·8 |
| 12 1 20 ·36 | 1 ·60 | 0 ·31 | 3 17 47 ·9 | 6 ·3 | 4 ·6 | 8 ·9 |
| 12 1 57 ·59 | 1 ·51 | 0 ·31 | 3 15 23 ·9 | 5 ·7 | 4 ·7 | 9 ·0 |
| 12 2 32 ·62 | 1 ·41 | 0 ·31 | 3 13 14 ·5 | 5 ·1 | 4 ·7 | 9 ·1 |
| 12 3 5 ·42 | 1 ·32 | 0 ·31 | 3 11 19 ·9 | 4 ·5 | 4 ·7 | 9 ·1 |
| 12 3 35 ·94 | 1 ·22 | 0 ·32 | 3 9 40 ·2 | 3 ·9 | 4 ·8 | 9 ·2 |
| 12 4 4 ·15 | 1 ·13 | 0 ·32 | 3 8 15 ·6 | 3 ·2 | 4 ·8 | 9 ·3 |
| 12 4 30 ·01 | 1 ·03 | 0 ·33 | 3 7 6 ·3 | 2 ·6 | 4 ·9 | 9 ·4 |
| 12 4 53 ·49 | 0 ·93 | 0 ·33 | 3 6 12 ·4 | 1 ·9 | 4 ·9 | 9 ·5 |
| 12 5 14 ·54 | 0 ·83 | 0 ·33 | 3 5 34 ·1 | 1 ·3 | 5 ·0 | 9 ·6 |
| 12 5 33 ·13 | 0 ·72 | 0 ·34 | 3 5 11 ·6 | — 0 ·6 | 5 ·0 | 9 ·7 |
| 12 5 49 ·23 | 0 ·62 | 0 ·34 | 3 5 4 ·9 | + 0 ·1 | 5 ·0 | 9 ·7 |
| 12 6 2 ·79 | 0 ·51 | 0 ·34 | 3 5 14 ·3 | 0 ·7 | 5 ·1 | 9 ·8 |
| 12 6 13 ·77 | 0 ·40 | 0 ·34 | 3 5 39 ·9 | 1 ·4 | 5 ·1 | 9 ·9 |
| 12 6 22 ·13 | 0 ·29 | 0 ·35 | 3 6 21 ·9 | 2 ·1 | 5 ·2 | 10 ·0 |
| 12 6 27 ·84 | 0 ·18 | 0 ·35 | 3 7 20 ·6 | 2 ·8 | 5 ·2 | 10 ·1 |
| 2 6 30 ·85 | + 0 ·07 | 0 ·36 | 3 8 36 ·0 | 3 ·5 | 5 ·3 | 10 ·2 |
| 6 31 ·13 | — 0 ·05 | 0 ·36 | N.3 10 8 ·2 | + 4 ·2 | 5 ·3 | 10 ·3 |

# FEBRUARY, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | R |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 12 6 31·27 | N.3 9 7·1 | 9·9237071 | 15 20·0 | 154 2 25·9 | N.1 46 55·2 | 0 |
| 2 | 12 6 30·55 | 3 10 45·8 | ·9198255 | 15 16·0 | 154 28 38·2 | 1 46 41·3 | |
| 3 | 12 6 27·04 | 3 12 41·6 | ·9159664 | 15 12·0 | 154 54 50·5 | 1 46 27·0 | |
| 4 | 12 6 20·71 | 3 14 54·6 | ·9121327 | 15 7·9 | 155 21 2·8 | 1 46 12·2 | |
| 5 | 12 6 11·51 | 3 17 24·9 | ·9083275 | 15 3·8 | 155 47 15·3 | 1 45 57·1 | |
| 6 | 12 5 59·43 | 3 20 12·5 | ·9045540 | 14 59·6 | 156 13 27·9 | 1 45 41·7 | |
| 7 | 12 5 44·43 | 3 23 17·5 | ·9008155 | 14 55·4 | 156 39 40·7 | 1 45 25·9 | |
| 8 | 12 5 26·50 | 3 26 39·8 | ·8971155 | 14 51·1 | 157 5 53·6 | 1 45 9·7 | |
| 9 | 12 5 5·62 | 3 30 19·4 | ·8934578 | 14 46·8 | 157 32 6·8 | 1 44 53·1 | |
| 10 | 12 4 41·78 | 3 34 16·2 | ·8898462 | 14 42·5 | 157 58 20·1 | 1 44 36·1 | |
| 11 | 12 4 14·97 | 3 38 30·1 | ·8862844 | 14 38·1 | 158 24 33·7 | 1 44 18·8 | |
| 12 | 12 3 45·18 | 3 43 1·0 | ·8827764 | 14 33·6 | 158 50 47·4 | 1 44 1·1 | |
| 13 | 12 3 12·42 | 3 47 48·6 | ·8793262 | 14 29·1 | 159 17 1·3 | 1 43 43·1 | |
| 14 | 12 2 36·71 | 3 52 52·6 | ·8759379 | 14 24·6 | 159 43 15·5 | 1 43 24·7 | |
| 15 | 12 1 58·05 | 3 58 12·8 | ·8726154 | 14 20·0 | 160 9 29·8 | 1 43 5·9 | |
| 16 | 12 1 16·48 | 4 3 48·6 | ·8693631 | 14 15·3 | 160 35 44·5 | 1 42 46·8 | |
| 17 | 12 0 32·02 | 4 9 39·8 | ·8661851 | 14 10·6 | 161 1 59·5 | 1 42 27·3 | |
| 18 | 11 59 44·72 | 4 15 45·8 | ·8630853 | 14 5·9 | 161 28 14·8 | 1 42 7·5 | |
| 19 | 11 58 54·63 | 4 22 6·1 | ·8600680 | 14 1·1 | 161 54 30·5 | 1 41 47·3 | |
| 20 | 11 58 1·78 | 4 28 40·1 | ·8571372 | 13 56·3 | 162 20 46·7 | 1 41 26·7 | |
| 21 | 11 57 6·24 | 4 35 27·4 | ·8542968 | 13 51·4 | 162 47 3·2 | 1 41 5·7 | |
| 22 | 11 56 8·04 | 4 42 27·4 | ·8515507 | 13 46·5 | 163 13 20·2 | 1 40 44·5 | |
| 23 | 11 55 7·27 | 4 49 39·4 | ·8489029 | 13 41·5 | 163 39 37·7 | 1 40 22·8 | |
| 24 | 11 54 3·98 | 4 57 2·7 | ·8463572 | 13 36·5 | 164 5 55·5 | 1 40 0·8 | |
| 25 | 11 52 58·28 | 5 4 36·8 | ·8439171 | 13 31·5 | 164 32 13·8 | 1 39 38·4 | |
| 26 | 11 51 50·22 | 5 12 20·7 | ·8415863 | 13 26·4 | 164 58 32·6 | 1 39 15·7 | |
| 27 | 11 50 39·92 | 5 20 13·8 | ·8393683 | 13 21·3 | 165 24 51·8 | 1 38 52·6 | |
| 28 | 11 49 27·46 | 5 28 15·3 | ·8372666 | 13 16·1 | 165 51 11·4 | 1 38 29·2 | |
| 29 | 11 48 12·95 | N.5 36 24·3 | 9·835[illegible] | | 66 17 31·6 | N.1 38 5·4 | 0 |

# FEBRUARY, 1839.

At Transit over the Meridian of Greenwich.

| MONTH. | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|---|
| | h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 1 | 12 6 31 ·13 | — 0 ·05 | 0 ·36 | N.3 10 8 ·2 | + 4 ·2 | 5 ·3 | 10 ·3 |
| 2 | 12 6 28 ·64 | 0 ·16 | 0 ·36 | 3 11 57 ·5 | 4 ·9 | 5 ·4 | 10 ·4 |
| 3 | 12 6 23 ·35 | 0 ·28 | 0 ·37 | 3 14 3 ·9 | 5 ·6 | 5 ·4 | 10 ·5 |
| 4 | 12 6 15 ·24 | 0 ·40 | 0 ·37 | 3 16 27 ·4 | 6 ·3 | 5 ·5 | 10 ·6 |
| 5 | 12 6 4 ·26 | 0 ·52 | 0 ·37 | 3 19 8 ·1 | 7 ·1 | 5 ·5 | 10 ·6 |
| 6 | 12 5 50 ·40 | 0 ·64 | 0 ·37 | 3 22 6 ·1 | 7 ·8 | 5 ·5 | 10 ·7 |
| 7 | 12 5 33 ·62 | 0 ·76 | 0 ·37 | 3 25 21 ·3 | 8 ·5 | 5 ·6 | 10 ·8 |
| 8 | 12 5 13 ·93 | 0 ·88 | 0 ·38 | 3 28 53 ·7 | 9 ·2 | 5 ·6 | 10 ·9 |
| 9 | 12 4 51 ·29 | 1 ·00 | 0 ·38 | 3 32 43 ·2 | 9 ·9 | 5 ·7 | 11 ·0 |
| 10 | 12 4 25 ·71 | 1 ·13 | 0 ·38 | 3 36 49 ·7 | 10 ·6 | 5 ·7 | 11 ·1 |
| 11 | 12 3 57 ·16 | 1 ·25 | 0 ·39 | 3 41 13 ·2 | 11 ·3 | 5 ·8 | 11 ·2 |
| 12 | 12 3 25 ·66 | 1 ·37 | 0 ·39 | 3 45 53 ·4 | 12 ·0 | 5 ·8 | 11 ·3 |
| 13 | 12 2 51 ·22 | 1 ·49 | 0 ·40 | 3 50 50 ·1 | 12 ·7 | 5 ·9 | 11 ·4 |
| 14 | 12 2 13 ·85 | 1 ·62 | 0 ·40 | 3 56 2 ·9 | 13 ·4 | 6 ·0 | 11 ·5 |
| 15 | 12 1 33 ·57 | 1 ·74 | 0 ·40 | 4 1 31 ·5 | 14 ·0 | 6 ·0 | 11 ·6 |
| 16 | 12 0 50 ·43 | 1 ·86 | 0 ·41 | 4 7 15 ·4 | 14 ·6 | 6 ·0 | 11 ·6 |
| 17 | 12 0 4 ·43 | 1 ·97 | 0 ·41 | 4 13 14 ·2 | 15 ·3 | 6 ·1 | 11 ·7 |
| 18 | 11 59 15 ·64 | 2 ·09 | 0 ·41 | 4 19 27 ·5 | 15 ·8 | 6 ·1 | 11 ·8 |
| 19 | 11 58 24 ·10 | 2 ·20 | 0 ·41 | 4 25 54 ·7 | 16 ·4 | 6 ·2 | 11 ·9 |
| 20 | 11 57 29 ·85 | 2 ·32 | 0 ·42 | 4 32 35 ·1 | 16 ·9 | 6 ·2 | 12 ·0 |
| 21 | 11 56 32 ·96 | 2 ·43 | 0 ·42 | 4 39 28 ·4 | 17 ·5 | 6 ·2 | 12 ·0 |
| 22 | 11 55 33 ·47 | 2 ·53 | 0 ·42 | 4 46 33 ·9 | 18 ·0 | 6 ·3 | 12 ·1 |
| 23 | 11 54 31 ·47 | 2 ·63 | 0 ·42 | 4 53 51 ·0 | 18 ·5 | 6 ·3 | 12 ·2 |
| 24 | 11 53 27 ·01 | 2 ·73 | 0 ·43 | 5 1 18 ·9 | 18 ·9 | 6 ·4 | 12 ·3 |
| 25 | 11 52 20 ·21 | 2 ·83 | 0 ·43 | 5 8 57 ·0 | 19 ·3 | 6 ·4 | 12 ·3 |
| 26 | 11 51 11 ·12 | 2 ·92 | 0 ·43 | 5 16 44 ·5 | 19 ·7 | 6 ·4 | 12 ·4 |
| 27 | 11 49 59 ·86 | 3 ·01 | 0 ·43 | 5 24 40 ·7 | 20 ·0 | 6 ·5 | 12 ·5 |
| 28 | 11 48 46 ·51 | 3 ·10 | 0 ·44 | 5 32 44 ·7 | 20 ·3 | 6 ·5 | 12 ·5 |
| 29 | 11 47 31 ·19 | — 3 ·18 | 0 ·44 | N.5 40 55 ·7 | +20 ·6 | 6 ·5 | 12 ·6 |

# MARCH, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | R |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 11 48 12·95 | N.5 36 24·3 | 9·8352847 | 13 10·9 | 166 17 31·6 | N.1 38 5·4 | 0·2 |
| 2 | 11 46 56·49 | 5 44 39·9 | ·8334257 | 13 5·7 | 166 43 52·3 | 1 37 41·3 | ·2 |
| 3 | 11 45 38·19 | 5 53 1·2 | ·8316929 | 13 0·5 | 167 10 13·6 | 1 37 16·8 | ·2 |
| 4 | 11 44 18·16 | 6 1 27·3 | ·8300894 | 12 55·2 | 167 36 35·5 | 1 36 51·9 | ·2 |
| 5 | 11 42 56·55 | 6 9 57·3 | ·8286178 | 12 49·9 | 168 2 58·1 | 1 36 26·7 | ·2 |
| 6 | 11 41 33·50 | 6 18 30·1 | ·8272807 | 12 44·6 | 168 29 21·3 | 1 36 1·1 | ·2 |
| 7 | 11 40 9·12 | 6 27 4·9 | ·8260807 | 12 39·2 | 168 55 45·2 | 1 35 35·2 | ·2 |
| 8 | 11 38 43·58 | 6 35 40·5 | ·8250200 | 12 33·8 | 169 22 9·8 | 1 35 9·0 | ·2 |
| 9 | 11 37 17·02 | 6 44 15·9 | ·8241004 | 12 28·5 | 169 48 35·1 | 1 34 42·4 | ·2 |
| 10 | 11 35 49·62 | 6 52 49·9 | ·8233235 | 12 23·1 | 170 15 1·1 | 1 34 15·4 | ·2 |
| 11 | 11 34 21·53 | 7 1 21·4 | ·8226908 | 12 17·7 | 170 41 27·9 | 1 33 48·1 | ·2 |
| 12 | 11 32 52·91 | 7 9 49·4 | ·8222033 | 12 12·3 | 171 7 55·3 | 1 33 20·4 | ·2 |
| 13 | 11 31 23·94 | 7 18 12·6 | ·8218614 | 12 6·9 | 171 34 23·5 | 1 32 52·4 | ·2 |
| 14 | 11 29 54·79 | 7 26 30·0 | ·8216655 | 12 1·5 | 172 0 52·4 | 1 32 24·0 | ·2 |
| 15 | 11 28 25·65 | 7 34 40·5 | ·8216158 | 11 56·1 | 172 27 22·0 | 1 31 55·3 | ·2 |
| 16 | 11 26 56·69 | 7 42 43·1 | ·8217116 | 11 50·7 | 172 53 52·5 | 1 31 26·3 | ·2 |
| 17 | 11 25 28·09 | 7 50 36·8 | ·8219518 | 11 45·3 | 173 20 23·8 | 1 30 56·9 | ·2 |
| 18 | 11 24 0·01 | 7 58 20·5 | ·8223355 | 11 39·9 | 173 46 56·1 | 1 30 27·1 | ·2 |
| 19 | 11 22 32·63 | 8 5 53·4 | ·8228611 | 11 34·5 | 174 13 29·2 | 1 29 57·1 | ·2 |
| 20 | 11 21 6·12 | 8 13 14·4 | ·8235266 | 11 29·2 | 174 40 3·3 | 1 29 26·7 | ·2 |
| 21 | 11 19 40·64 | 8 20 22·9 | ·8243298 | 11 23·8 | 175 6 38·3 | 1 28 55·9 | ·2 |
| 22 | 11 18 16·33 | 8 27 17·9 | ·8252682 | 11 18·5 | 175 33 14·3 | 1 28 24·8 | ·2 |
| 23 | 11 16 53·37 | 8 33 58·7 | ·8263392 | 11 13·2 | 175 59 51·3 | 1 27 53·4 | ·2 |
| 24 | 11 15 31·88 | 8 40 24·7 | ·8275396 | 11 7·9 | 176 26 29·1 | 1 27 21·6 | ·2 |
| 25 | 11 14 12·00 | 8 46 35·3 | ·8288663 | 11 2·7 | 176 53 8·0 | 1 26 49·5 | |
| 26 | 11 12 53·85 | 8 52 30·0 | ·8303160 | 10 57·5 | 177 19 47·8 | 1 26 17·1 | |
| 27 | 11 11 37·55 | 8 58 8·4 | ·8318852 | 10 52·3 | 177 46 28·5 | 1 25 44·3 | |
| 28 | 11 10 23·23 | 9 3 30·0 | ·8335703 | 10 47·2 | 178 13 10·3 | [illegible] | |
| 29 | 11 9 10·98 | 9 8 34·4 | ·8353678 | 10 42·1 | 178 39 5[illegible] | | |
| 30 | 11 8 0·92 | 9 13 21·3 | ·8372741 | 10 37·0 | 17[illegible] | | |
| 31 | 11 6 53·15 | 9 17 50·3 | ·8392853 | 10 32·0 | 17[illegible] | | |
| 32 | 11 5 47·74 | N.9 22 1·4 | 9·8413978 | 10 27·0 | 18[illegible] | | |

# MARCH, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 11 47 31 ·19 | — 3 ·18 | 0 ·44 | N. 5 40 55 ·7 | +20 ·6 | 6 ·5 | 12 ·6 |
| 11 46 13 ·99 | 3 ·25 | 0 ·44 | 5 49 12 ·7 | 20 ·8 | 6 ·5 | 12 ·6 |
| 11 44 55 ·03 | 3 ·32 | 0 ·44 | 5 57 34 ·9 | 21 ·0 | 6 ·6 | 12 ·7 |
| 11 43 34 ·42 | 3 ·39 | 0 ·44 | 6 6 1 ·4 | 21 ·2 | 6 ·6 | 12 ·7 |
| 11 42 12 ·32 | 3 ·45 | 0 ·44 | 6 14 31 ·2 | 21 ·3 | 6 ·6 | 12 ·7 |
| 11 40 48 ·86 | 3 ·50 | 0 ·44 | 6 23 3 ·2 | 21 ·4 | 6 ·6 | 12 ·8 |
| 11 39 24 ·16 | 3 ·55 | 0 ·44 | 6 31 36 ·7 | 21 ·4 | 6 ·6 | 12 ·8 |
| 11 37 58 ·39 | 3 ·59 | 0 ·44 | 6 40 10 ·4 | 21 ·4 | 6 ·6 | 12 ·8 |
| 11 36 31 ·69 | 3 ·63 | 0 ·44 | 6 48 43 ·3 | 21 ·3 | 6 ·6 | 12 ·8 |
| 11 35 4 ·24 | 3 ·66 | 0 ·45 | 6 57 14 ·3 | 21 ·2 | 6 ·7 | 12 ·9 |
| 11 33 36 ·19 | 3 ·68 | 0 ·45 | 7 5 42 ·2 | 21 ·1 | 6 ·7 | 12 ·9 |
| 11 32 7 ·71 | 3 ·69 | 0 ·45 | 7 14 6 ·0 | 20 ·9 | 6 ·7 | 12 ·9 |
| 11 30 38 ·96 | 3 ·70 | 0 ·45 | 7 22 24 ·5 | 20 ·7 | 6 ·7 | 12 ·9 |
| 11 29 10 ·12 | 3 ·70 | 0 ·45 | 7 30 36 ·7 | 20 ·4 | 6 ·7 | 12 ·9 |
| 11 27 41 ·38 | 3 ·69 | 0 ·45 | 7 38 41 ·5 | 20 ·1 | 6 ·7 | 12 ·9 |
| 11 26 12 ·91 | 3 ·68 | 0 ·45 | 7 46 38 ·0 | 19 ·7 | 6 ·7 | 12 ·9 |
| 11 24 44 ·87 | 3 ·66 | 0 ·45 | 7 54 25 ·2 | 19 ·3 | 6 ·7 | 12 ·9 |
| 11 23 17 ·44 | 3 ·63 | 0 ·45 | 8 2 2 ·0 | 18 ·8 | 6 ·7 | 12 ·9 |
| 11 21 50 ·79 | 3 ·59 | 0 ·45 | 8 9 27 ·6 | 18 ·3 | 6 ·7 | 12 ·9 |
| 11 20 25 ·07 | 3 ·55 | 0 ·45 | 8 16 41 ·1 | 17 ·8 | 6 ·7 | 12 ·9 |
| 11 19 0 ·45 | 3 ·50 | 0 ·45 | 8 23 41 ·7 | 17 ·2 | 6 ·7 | 12 ·9 |
| 11 17 37 ·06 | 3 ·44 | 0 ·44 | 8 30 28 ·6 | 16 ·6 | 6 ·6 | 12 ·8 |
| 11 16 15 ·08 | 3 ·38 | 0 ·44 | 8 37 1 ·1 | 16 ·0 | 6 ·6 | 12 ·8 |
| 11 14 54 ·61 | 3 ·32 | 0 ·44 | 8 43 18 ·6 | 15 ·4 | 6 ·6 | 12 ·8 |
| 11 13 35 ·80 | 3 ·25 | 0 ·44 | 8 49 20 ·6 | 14 ·7 | 6 ·6 | 12 ·7 |
| 11 12 18 ·77 | 3 ·17 | 0 ·44 | 8 55 6 ·5 | 14 ·1 | 6 ·6 | 12 ·7 |
| 11 11 3 ·63 | 3 ·09 | 0 ·43 | 9 0 36 ·1 | 13 ·4 | 6 ·5 | 12 ·6 |
| 11 9 50 ·50 | 3 ·00 | 0 ·43 | 9 5 48 ·9 | 12 ·7 | 6 ·5 | 12 ·6 |
| ·46 | 2 ·91 | 0 ·43 | 9 10 44 ·4 | 12 ·0 | 6 ·5 | 12 ·5 |
| ·65 | 2 ·82 | 0 ·43 | 9 15 22 ·5 | 11 ·2 | 6 ·5 | 12 ·5 |
| ·[illegible] | 2 ·72 | 0 ·43 | 9 19 42 ·7 | 10 ·5 | 6 ·4 | 12 ·4 |
| | 2 ·62 | 0 ·43 | N. 9 23 45 ·1 | + 9 ·7 | 6 ·4 | 12 ·4 |

# APRIL, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. of Rad. Vect. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 11 5 47·74 | N.9 22 1·4 | 9·8413978 | 10 27·0 | 180 0 8·4 | N.1 22 55·6 | 0·2168316 |
| 2 | 11 4 44·78 | 9 25 54·1 | ·8436077 | 10 22·0 | 180 26 55·7 | 1 22 20·8 | ·2166748 |
| 3 | 11 3 44·33 | 9 29 28·5 | ·8459112 | 10 17·1 | 180 53 44·3 | 1 21 45·8 | ·2165136 |
| 4 | 11 2 46·46 | 9 32 44·4 | ·8483046 | 10 12·3 | 181 20 34·1 | 1 21 10·4 | ·2163539 |
| 5 | 11 1 51·23 | 9 35 41·6 | ·8507838 | 10 7·5 | 181 47 25·1 | 1 20 34·7 | ·2161898 |
| 6 | 11 0 58·71 | 9 38 20·2 | ·8533451 | 10 2·7 | 182 14 17·3 | 1 19 58·7 | ·2160232 |
| 7 | 11 0 8·95 | 9 40 39·9 | ·8559846 | 9 58·0 | 182 41 10·7 | 1 19 22·4 | ·2158543 |
| 8 | 10 59 22·01 | 9 42 40·8 | ·8586984 | 9 53·3 | 183 8 5·4 | 1 18 45·7 | ·2156829 |
| 9 | 10 58 37·92 | 9 44 22·9 | ·8614826 | 9 48·6 | 183 35 1·3 | 1 18 8·8 | ·2155091 |
| 10 | 10 57 56·71 | 9 45 46·1 | ·8643333 | 9 44·0 | 184 1 58·4 | 1 17 31·5 | ·2153329 |
| 11 | 10 57 18·42 | 9 46 50·6 | ·8672466 | 9 39·4 | 184 28 56·8 | 1 16 53·9 | ·2151543 |
| 12 | 10 56 43·06 | 9 47 36·4 | ·8702189 | 9 34·9 | 184 55 56·5 | 1 16 16·0 | ·2149734 |
| 13 | 10 56 10·67 | 9 48 3·6 | ·8732460 | 9 30·5 | 185 22 57·5 | 1 15 37·7 | ·2147900 |
| 14 | 10 55 41·24 | 9 48 12·3 | ·8763243 | 9 26·1 | 185 49 59·9 | 1 14 59·2 | ·2146043 |
| 15 | 10 55 14·79 | 9 48 2·7 | ·8794500 | 9 21·7 | 186 17 3·8 | 1 14 20·3 | ·2144162 |
| 16 | 10 54 51·33 | 9 47 34·8 | ·8826193 | 9 17·4 | 186 44 9·1 | 1 13 41·1 | ·2142258 |
| 17 | 10 54 30·84 | 9 46 48·9 | ·8858286 | 9 13·1 | 187 11 15·9 | 1 13 1·6 | ·2140330 |
| 18 | 10 54 13·32 | 9 45 45·3 | ·8890745 | 9 8·9 | 187 38 24·1 | 1 12 21·8 | ·2138379 |
| 19 | 10 53 58·75 | 9 44 24·1 | ·8923535 | 9 4·8 | 188 5 33·8 | 1 11 41·7 | ·2136404 |
| 20 | 10 53 47·11 | 9 42 45·7 | ·8956624 | 9 0·7 | 188 32 45·0 | 1 11 1·3 | ·2134406 |
| 21 | 10 53 38·36 | 9 40 50·4 | ·8989981 | 8 56·7 | 188 59 57·6 | 1 10 20·6 | ·2132385 |
| 22 | 10 53 32·48 | 9 38 38·3 | ·9023576 | 8 52·7 | 189 27 11·7 | 1 9 39·6 | ·2130341 |
| 23 | 10 53 29·45 | 9 36 9·9 | ·9057380 | 8 48·7 | 189 54 27·3 | 1 8 58·3 | ·2128274 |
| 24 | 10 53 29·21 | 9 33 25·4 | ·9091366 | 8 44·8 | 190 21 44·4 | 1 8 16·6 | ·2126183 |
| 25 | 10 53 31·74 | 9 30 25·1 | ·9125510 | 8 40·9 | 190 49 3·1 | 1 7 34·7 | ·2124070 |
| 26 | 10 53 37·00 | 9 27 9·3 | ·9159788 | 8 37·1 | 191 16 23·4 | 1 6 52·5 | ·2121933 |
| 27 | 10 53 44·94 | 9 23 38·3 | ·9194179 | 8 33·3 | 191 43 45·3 | 1 6 10·0 | ·2119774 |
| 28 | 10 53 55·52 | 9 19 52·4 | ·9228661 | 8 29·6 | 192 11 8·8 | 1 5 27·2 | ·2117592 |
| 29 | 10 54 8·71 | 9 15 51·9 | ·9263216 | 8 25·8 | 192 38 34·1 | 1 4 44·1 | ·2115388 |
| 30 | 10 54 24·47 | 9 11 37·1 | ·9297825 | 8 22·1 | 193 6 1·1 | 1 4 0·8 | ·2113163 |
| 31 | 10 54 42·75 | N.9 7 8·1 | 9·9332471 | 8 18·5 | 193 33 29·8 | N.1 3 17·1 | 0·2110920 |

# APRIL, 1839.

At Transit over the Meridian of Greenwich.

| Month. | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|---|
| | h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 1 | 11 5 20 ·02 | — 2 ·62 | 0 ·43 | N.9 23 45 ·1 | + 9 ·7 | 6 ·4 | 12 ·4 |
| 2 | 11 4 18 ·35 | 2 ·52 | 0 ·43 | 9 27 29 ·1 | 9 ·0 | 6 ·4 | 12 ·3 |
| 3 | 11 3 19 ·21 | 2 ·41 | 0 ·43 | 9 30 54 ·8 | 8 ·2 | 6 ·3 | 12 ·2 |
| 4 | 11 2 22 ·66 | 2 ·30 | 0 ·43 | 9 34 2 ·1 | 7 ·4 | 6 ·3 | 12 ·2 |
| 5 | 11 1 28 ·75 | 2 ·19 | 0 ·43 | 9 36 50 ·8 | 6 ·6 | 6 ·3 | 12 ·1 |
| 6 | 11 0 37 ·56 | 2 ·08 | 0 ·42 | 9 39 21 ·0 | 5 ·9 | 6 ·2 | 12 ·0 |
| 7 | 10 59 49 ·12 | 1 ·96 | 0 ·42 | 9 41 32 ·4 | 5 ·1 | 6 ·2 | 11 ·9 |
| 8 | 10 59 3 ·50 | 1 ·84 | 0 ·42 | 9 43 25 ·1 | 4 ·3 | 6 ·2 | 11 ·9 |
| 9 | 10 58 20 ·72 | 1 ·72 | 0 ·42 | 9 44 59 ·2 | 3 ·6 | 6 ·1 | 11 ·8 |
| 10 | 10 57 40 ·82 | 1 ·60 | 0 ·42 | 9 46 14 ·5 | 2 ·8 | 6 ·1 | 11 ·7 |
| 11 | 10 57 3 ·83 | 1 ·48 | 0 ·42 | 9 47 11 ·3 | 2 ·0 | 6 ·0 | 11 ·6 |
| 12 | 10 56 29 ·76 | 1 ·36 | 0 ·42 | 9 47 49 ·5 | 1 ·2 | 6 ·0 | 11 ·5 |
| 13 | 10 55 58 ·65 | 1 ·23 | 0 ·41 | 9 48 9 ·3 | + 0 ·4 | 5 ·9 | 11 ·5 |
| 14 | 10 55 30 ·49 | 1 ·11 | 0 ·41 | 9 48 10 ·7 | — 0 ·3 | 5 ·9 | 11 ·4 |
| 15 | 10 55 5 ·29 | 0 ·99 | 0 ·40 | 9 47 54 ·0 | 1 ·1 | 5 ·8 | 11 ·3 |
| 16 | 10 54 43 ·06 | 0 ·86 | 0 ·40 | 9 47 19 ·2 | 1 ·8 | 5 ·8 | 11 ·2 |
| 17 | 10 54 23 ·77 | 0 ·74 | 0 ·39 | 9 46 26 ·5 | 2 ·6 | 5 ·7 | 11 ·1 |
| 18 | 10 54 7 ·43 | 0 ·62 | 0 ·39 | 9 45 16 ·4 | 3 ·3 | 5 ·7 | 11 ·0 |
| 19 | 10 53 54 ·01 | 0 ·50 | 0 ·39 | 9 43 48 ·9 | 4 ·0 | 5 ·7 | 11 ·0 |
| 20 | 10 53 43 ·49 | 0 ·38 | 0 ·38 | 9 42 4 ·4 | 4 ·7 | 5 ·6 | 10 ·9 |
| 21 | 10 53 35 ·84 | 0 ·26 | 0 ·38 | 9 40 3 ·1 | 5 ·4 | 5 ·6 | 10 ·8 |
| 22 | 10 53 31 ·03 | 0 ·14 | 0 ·38 | 9 37 45 ·3 | 6 ·1 | 5 ·5 | 10 ·7 |
| 23 | 10 53 29 ·04 | — 0 ·03 | 0 ·38 | 9 35 11 ·4 | 6 ·7 | 5 ·5 | 10 ·6 |
| 24 | 10 53 29 ·81 | + 0 ·09 | 0 ·38 | 9 32 21 ·5 | 7 ·4 | 5 ·5 | 10 ·6 |
| 25 | 10 53 33 ·32 | 0 ·20 | 0 ·37 | 9 29 16 ·1 | 8 ·0 | 5 ·4 | 10 ·5 |
| 26 | 10 53 39 ·54 | 0 ·31 | 0 ·37 | 9 25 55 ·3 | 8 ·7 | 5 ·4 | 10 ·4 |
| 27 | 10 53 48 ·40 | 0 ·42 | 0 ·36 | 9 22 19 ·5 | 9 ·3 | 5 ·3 | 10 ·3 |
| 28 | 10 53 59 ·88 | 0 ·53 | 0 ·36 | 9 18 29 ·0 | 9 ·9 | 5 ·3 | 10 ·2 |
| 29 | 54 13 ·94 | 0 ·63 | 0 ·35 | 9 14 24 ·0 | 10 ·5 | 5 ·2 | 10 ·1 |
| 30 | 20 ·56 | 0 ·74 | 0 ·35 | 9 10 4 ·9 | 11 ·1 | 5 ·2 | 10 ·1 |
| | | + 0 ·85 | 0 ·35 | N.9 5 31 ·8 | —11 ·7 | 5 ·2 | 10 ·0 |

# MAY, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. of Rad. Vec. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 10 54 42·75 | N.9 7 8·1 | 9·9332471 | 8 18·5 | 193 33 29·8 | N.1 3 17·1 | 0·2110 |
| 2 | 10 55 3·52 | 9 2 25·3 | ·9367138 | 8 14·9 | 194 1 0·2 | 1 2 33·2 | ·2108 |
| 3 | 10 55 26·73 | 8 57 28·9 | ·9401810 | 8 11·4 | 194 28 32·3 | 1 1 49·0 | ·2106 |
| 4 | 10 55 52·35 | 8 52 19·1 | ·9436472 | 8 7·9 | 194 56 6·2 | 1 1 4·4 | ·2104 |
| 5 | 10 56 20·32 | 8 46 56·2 | ·9471109 | 8 4·5 | 195 23 41·9 | 1 0 19·6 | ·2101 |
| 6 | 10 56 50·61 | 8 41 20·4 | ·9505707 | 8 1·1 | 195 51 19·3 | 0 59 34·6 | ·2099 |
| 7 | 10 57 23·19 | 8 35 31·9 | ·9540254 | 7 57·7 | 196 18 58·4 | 0 58 49·2 | ·2096 |
| 8 | 10 57 58·01 | 8 29 30·9 | ·9574738 | 7 54·3 | 196 46 39·4 | 0 58 3·5 | ·2094 |
| 9 | 10 58 35·04 | 8 23 17·5 | ·9609147 | 7 51·0 | 197 14 22·1 | 0 57 17·6 | ·2092 |
| 10 | 10 59 14·25 | 8 16 52·0 | ·9643470 | 7 47·7 | 197 42 6·7 | 0 56 31·4 | ·2089 |
| 11 | 10 59 55·60 | 8 10 14·4 | ·9677695 | 7 44·5 | 198 9 53·1 | 0 55 44·9 | ·2087 |
| 12 | 11 0 39·04 | 8 3 25·0 | ·9711808 | 7 41·3 | 198 37 41·5 | 0 54 58·1 | ·2084 |
| 13 | 11 1 24·54 | 7 56 24·0 | ·9745800 | 7 38·2 | 199 5 31·9 | 0 54 11·1 | ·2082 |
| 14 | 11 2 12·06 | 7 49 11·5 | ·9779658 | 7 35·0 | 199 33 24·3 | 0 53 23·8 | ·2079 |
| 15 | 11 3 1·55 | 7 41 47·8 | ·9813374 | 7 31·9 | 200 1 18·6 | 0 52 36·2 | ·2077 |
| 16 | 11 3 52·98 | 7 34 13·1 | ·9846938 | 7 28·8 | 200 29 14·9 | 0 51 48·3 | ·2074 |
| 17 | 11 4 46·31 | 7 26 27·6 | ·9880341 | 7 25·8 | 200 57 13·2 | 0 51 0·2 | ·2071 |
| 18 | 11 5 41·49 | 7 18 31·6 | ·9913577 | 7 22·9 | 201 25 13·5 | 0 50 11·8 | ·2069 |
| 19 | 11 6 38·49 | 7 10 25·4 | ·9946636 | 7 19·9 | 201 53 15·7 | 0 49 23·2 | ·2066 |
| 20 | 11 7 37·25 | 7 2 9·0 | 9·9979513 | 7 17·0 | 202 21 20·0 | 0 48 34·3 | ·2064 |
| 21 | 11 8 37·74 | 6 53 42·7 | 0·0012201 | 7 14·0 | 202 49 26·2 | 0 47 45·2 | ·2061 |
| 22 | 11 9 39·92 | 6 45 6·7 | ·0044693 | 7 11·2 | 203 17 34·5 | 0 46 55·8 | ·2058 |
| 23 | 11 10 43·75 | 6 36 21·2 | ·0076987 | 7 8·3 | 203 45 45·0 | 0 46 6·2 | ·2056 |
| 24 | 11 11 49·18 | 6 27 26·3 | ·0109078 | 7 5·5 | 204 13 57·5 | 0 45 16·3 | ·2053 |
| 25 | 11 12 56·19 | 6 18 22·4 | ·0140964 | 7 2·6 | 204 42 12·2 | 0 44 26·2 | ·2050 |
| 26 | 11 14 4·73 | 6 9 9·6 | ·0172642 | 6 59·9 | 205 10 29·1 | 0 43 35·9 | ·2047 |
| 27 | 11 15 14·78 | 5 59 48·0 | ·0204110 | 6 57·1 | 205 38 48·2 | 0 42 45·2 | ·2044 |
| 28 | 11 16 26·30 | 5 50 17·9 | ·0235367 | 6 54·4 | 206 7 9·5 | 0 41 54·4 | ·2042 |
| 29 | 11 17 39·25 | 5 40 39·3 | ·0266411 | 6 51·6 | 206 35 33·0 | 0 41 3·3 | ·2039 |
| 30 | 11 18 53·62 | 5 30 52·4 | ·0297241 | 6 48·9 | 207 3 58·8 | 0 40 12·0 | ·2036 |
| 31 | 11 20 9·37 | 5 20 57·4 | ·0327858 | 6 46·2 | 207 32 26·8 | 0 39 20·4 | ·2033 |
| | 26·47 | N.5 10 54·4 | 0·0358259 | 6 43·5 | 208 0 57·1 | N.0 38 28·6 | 0·2030 |

# MAY, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 0 54 49 ·66 | + 0 ·85 | 0 ·35 | N.9 5 31 ·8 | — 11 ·7 | 5 ·2 | 10 ·0 |
| 0 55 11 ·22 | 0 ·95 | 0 ·34 | 9 0 45 ·0 | 12 ·2 | 5 ·1 | 9 ·9 |
| 0 55 35 ·20 | 1 ·05 | 0 ·34 | 8 55 44 ·7 | 12 ·8 | 5 ·1 | 9 ·8 |
| 0 56 1 ·56 | 1 ·15 | 0 ·34 | 8 50 31 ·1 | 13 ·3 | 5 ·0 | 9 ·7 |
| 0 56 30 ·25 | 1 ·25 | 0 ·33 | 8 45 4 ·6 | 13 ·9 | 5 ·0 | 9 ·7 |
| 0 57 1 ·24 | 1 ·34 | 0 ·33 | 8 39 25 ·3 | 14 ·4 | 5 ·0 | 9 ·6 |
| 0 57 34 ·49 | 1 ·43 | 0 ·33 | 8 33 33 ·5 | 14 ·9 | 4 ·9 | 9 ·5 |
| 0 58 9 ·97 | 1 ·52 | 0 ·33 | 8 27 29 ·2 | 15 ·4 | 4 ·9 | 9 ·4 |
| 0 58 47 ·63 | 1 ·61 | 0 ·32 | 8 21 12 ·7 | 15 ·9 | 4 ·9 | 9 ·4 |
| 0 59 27 ·46 | 1 ·70 | 0 ·32 | 8 14 44 ·1 | 16 ·4 | 4 ·8 | 9 ·3 |
| 1 0 9 ·39 | 1 ·79 | 0 ·32 | 8 8 3 ·6 | 16 ·9 | 4 ·8 | 9 ·2 |
| 1 0 53 ·40 | 1 ·88 | 0 ·31 | 8 1 11 ·3 | 17 ·4 | 4 ·7 | 9 ·1 |
| 1 1 39 ·44 | 1 ·96 | 0 ·31 | 7 54 7 ·6 | 17 ·9 | 4 ·7 | 9 ·1 |
| 1 2 27 ·49 | 2 ·04 | 0 ·31 | 7 46 52 ·5 | 18 ·4 | 4 ·7 | 9 ·0 |
| 1 3 17 ·48 | 2 ·12 | 0 ·31 | 7 39 26 ·2 | 18 ·9 | 4 ·6 | 8 ·9 |
| 1 4 9 ·40 | 2 ·20 | 0 ·31 | 7 31 49 ·1 | 19 ·3 | 4 ·6 | 8 ·9 |
| 1 5 3 ·19 | 2 ·28 | 0 ·30 | 7 24 1 ·3 | 19 ·7 | 4 ·6 | 8 ·8 |
| 1 5 58 ·81 | 2 ·36 | 0 ·30 | 7 16 3 ·2 | 20 ·1 | 4 ·5 | 8 ·7 |
| 1 6 56 ·25 | 2 ·43 | 0 ·30 | 7 7 54 ·9 | 20 ·6 | 4 ·5 | 8 ·6 |
| 1 7 55 ·41 | 2 ·50 | 0 ·30 | 6 59 36 ·5 | 21 ·0 | 4 ·5 | 8 ·6 |
| 1 8 56 ·30 | 2 ·57 | 0 ·30 | 6 51 8 ·3 | 21 ·4 | 4 ·4 | 8 ·5 |
| 1 9 58 ·84 | 2 ·64 | 0 ·29 | 6 42 30 ·5 | 21 ·8 | 4 ·4 | 8 ·5 |
| 1 11 3 ·04 | 2 ·71 | 0 ·29 | 6 33 43 ·3 | 22 ·2 | 4 ·3 | 8 ·4 |
| 1 12 8 ·80 | 2 ·77 | 0 ·29 | 6 24 46 ·7 | 22 ·5 | 4 ·3 | 8 ·4 |
| 1 13 16 ·14 | 2 ·84 | 0 ·29 | 6 15 41 ·2 | 22 ·9 | 4 ·3 | 8 ·3 |
| 1 14 24 ·99 | 2 ·90 | 0 ·28 | 6 6 26 ·9 | 23 ·3 | 4 ·2 | 8 ·2 |
| 1 15 35 ·35 | 2 ·96 | 0 ·28 | 5 57 3 ·8 | 23 ·6 | 4 ·2 | 8 ·2 |
| 1 16 47 ·15 | 3 ·02 | 0 ·28 | 5 47 32 ·3 | 24 ·0 | 4 ·2 | 8 ·1 |
| 1 18 0 ·37 | 3 ·08 | 0 ·28 | 5 37 52 ·4 | 24 ·3 | 4 ·2 | 8 ·1 |
| 1 19 14 ·99 | 3 ·14 | 0 ·27 | 5 28 4 ·3 | 24 ·6 | 4 ·1 | 8 ·0 |
| 1 20 30 ·99 | 3 ·20 | 0 ·27 | 5 18 8 ·1 | 25 ·0 | 4 ·1 | 7 ·9 |
| ·32 | + 3 ·25 | 0 ·27 | N.5 8 4 ·0 | — 25 ·3 | 4 ·1 | 7 ·9 |

# JUNE, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | |
|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ |
| 1 | 11 21 26·47 | N.5 10 54·4 | 0·0358259 | 6 43·5 | 208 0 57·1 | N.0 38 28·6 |
| 2 | 11 22 44·89 | 5 0 43·5 | ·0388444 | 6 40·9 | 208 29 29·6 | 0 37 36·6 |
| 3 | 11 24 4·61 | 4 50 24·9 | ·0418414 | 6 38·3 | 208 58 4·4 | 0 36 44·3 |
| 4 | 11 25 25·61 | 4 39 58·6 | ·0448167 | 6 35·7 | 209 26 41·4 | 0 35 51·8 |
| 5 | 11 26 47·87 | 4 29 24·9 | ·0477701 | 6 33·1 | 209 55 20·8 | 0 34 59·1 |
| 6 | 11 28 11·36 | 4 18 43·7 | ·0507016 | 6 30·6 | 210 24 2·4 | 0 34 6·1 |
| 7 | 11 29 36·07 | 4 7 55·2 | ·0536110 | 6 28·1 | 210 52 46·5 | 0 33 12·9 |
| 8 | 11 31 1·98 | 3 56 59·5 | ·0564982 | 6 25·6 | 211 21 33·0 | 0 32 19·6 |
| 9 | 11 32 29·07 | 3 45 56·8 | ·0593631 | 6 23·1 | 211 50 21·9 | 0 31 26·0 |
| 10 | 11 33 57·32 | 3 34 47·0 | ·0622056 | 6 20·7 | 212 19 13·3 | 0 30 32·2 |
| 11 | 11 35 26·71 | 3 23 30·4 | ·0650256 | 6 18·3 | 212 48 7·1 | 0 29 38·2 |
| 12 | 11 36 57·21 | 3 12 7·0 | ·0678229 | 6 15·9 | 213 17 3·5 | 0 28 44·0 |
| 13 | 11 38 28·82 | 3 0 37·1 | ·0705974 | 6 13·5 | 213 46 2·3 | 0 27 49·6 |
| 14 | 11 40 1·49 | 2 49 0·7 | ·0733489 | 6 11·0 | 214 15 3·6 | 0 26 55·0 |
| 15 | 11 41 35·22 | 2 37 18·0 | ·0760773 | 6 8·6 | 214 44 7·4 | 0 26 0·3 |
| 16 | 11 43 9·99 | 2 25 29·2 | ·0787827 | 6 6·2 | 215 13 13·6 | 0 25 5·3 |
| 17 | 11 44 45·76 | 2 13 34·3 | ·0814650 | 6 3·9 | 215 42 22·4 | 0 24 10·2 |
| 18 | 11 46 22·53 | 2 1 33·6 | ·0841242 | 6 1·6 | 216 11 33·7 | 0 23 14·9 |
| 19 | 11 48 0·28 | 1 49 27·2 | ·0867604 | 5 59·3 | 216 40 47·6 | 0 22 19·5 |
| 20 | 11 49 38·98 | 1 37 15·2 | ·0893737 | 5 57·0 | 217 10 4·0 | 0 21 23·8 |
| 21 | 11 51 18·63 | 1 24 57·8 | ·0919643 | 5 54·7 | 217 39 23·1 | 0 20 28·0 |
| 22 | 11 52 59·19 | 1 12 35·1 | ·0945321 | 5 52·5 | 218 8 44·9 | 0 19 32·0 |
| 23 | 11 54 40·66 | 1 0 7·3 | ·0970774 | 5 50·3 | 218 38 9·3 | 0 18 35·9 |
| 24 | 11 56 23·02 | 0 47 34·5 | ·0996005 | 5 48·1 | 219 7 36·4 | 0 17 39·5 |
| 25 | 11 58 6·26 | 0 34 56·7 | ·1021014 | 5 45·9 | 219 37 6·3 | 0 16 43·0 |
| 26 | 11 59 50·36 | 0 22 14·2 | ·1045805 | 5 43·6 | 220 6 38·8 | 0 15 46·4 |
| 27 | 12 1 35·31 | N.0 9 26·9 | ·1070380 | 5 41·4 | 220 36 14·1 | 0 14 49·6 |
| 28 | 12 3 21·11 | S.0 3 24·9 | ·1094741 | 5 39·2 | 221 5 52·0 | 0 13 52·5 |
| 29 | 12 5 7·73 | 0 16 21·2 | ·1118891 | 5 37·0 | 221 35 32·7 | 0 12 55·4 |
| 30 | 12 6 55·16 | 0 29 21·8 | ·1142830 | 5 34·9 | 222 5 16·0 | 0 11 58·1 |
| 31 | 12 8 43·41 | S.0 42 26·5 | 0·1166563 | 5 32·8 | 222 35 2·1 | N.0 11 0·6 |

# JUNE, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 1 21 48 ·32 | + 3 ·25 | 0 ·27 | N.5 8 4 ·0 | —25 ·3 | 4 ·1 | 7 ·9 |
| 1 23 6 ·96 | 3 ·30 | 0 ·27 | 4 57 52 ·0 | 25 ·7 | 4 ·0 | 7 ·8 |
| 1 24 26 ·89 | 3 ·36 | 0 ·26 | 4 47 32 ·4 | 26 ·0 | 4 ·0 | 7 ·8 |
| 1 25 48 ·10 | 3 ·41 | 0 ·26 | 4 37 5 ·2 | 26 ·3 | 4 ·0 | 7 ·7 |
| 1 27 10 ·55 | 3 ·46 | 0 ·26 | 4 26 30 ·6 | 26 ·6 | 4 ·0 | 7 ·7 |
| 1 28 34 ·22 | 3 ·54 | 0 ·26 | 4 15 48 ·5 | 26 ·9 | 3 ·9 | 7 ·6 |
| 1 29 59 ·11 | 3 ·56 | 0 ·26 | 4 4 59 ·2 | 27 ·2 | 3 ·9 | 7 ·6 |
| 1 31 25 ·19 | 3 ·61 | 0 ·26 | 3 54 2 ·7 | 27 ·5 | 3 ·9 | 7 ·5 |
| 1 32 52 ·44 | 3 ·66 | 0 ·26 | 3 42 59 ·3 | 27 ·8 | 3 ·9 | 7 ·5 |
| 1 34 20 ·84 | 3 ·71 | 0 ·26 | 3 31 48 ·8 | 28 ·1 | 3 ·8 | 7 ·4 |
| 1 35 50 ·37 | 3 ·75 | 0 ·25 | 3 20 31 ·5 | 28 ·4 | 3 ·8 | 7 ·3 |
| 1 37 21 ·01 | 3 ·80 | 0 ·25 | 3 9 7 ·5 | 28 ·6 | 3 ·8 | 7 ·3 |
| 1 38 52 ·75 | 3 ·85 | 0 ·25 | 2 57 37 ·1 | 28 ·9 | 3 ·8 | 7 ·3 |
| 1 40 25 ·54 | 3 ·89 | 0 ·25 | 2 46 0 ·2 | 29 ·2 | 3 ·7 | 7 ·2 |
| 1 41 59 ·38 | 3 ·93 | 0 ·25 | 2 34 17 ·1 | 29 ·4 | 3 ·7 | 7 ·2 |
| 1 43 34 ·26 | 3 ·97 | 0 ·24 | 2 22 28 ·0 | 29 ·7 | 3 ·6 | 7 ·1 |
| 1 45 10 ·13 | 4 ·02 | 0 ·24 | 2 10 32 ·8 | 29 ·9 | 3 ·6 | 7 ·1 |
| 1 46 46 ·99 | 4 ·06 | 0 ·24 | 1 58 31 ·8 | 30 ·2 | 3 ·6 | 7 ·1 |
| 1 48 24 ·82 | 4 ·10 | 0 ·24 | 1 46 25 ·1 | 30 ·4 | 3 ·6 | 7 ·0 |
| 1 50 3 ·60 | 4 ·14 | 0 ·24 | 1 34 12 ·9 | 30 ·6 | 3 ·6 | 7 ·0 |
| 1 51 43 ·32 | 4 ·17 | 0 ·24 | 1 21 55 ·3 | 30 ·8 | 3 ·6 | 7 ·0 |
| 1 53 23 ·95 | 4 ·21 | 0 ·24 | 1 9 32 ·5 | 31 ·1 | 3 ·6 | 6 ·9 |
| 1 55 5 ·48 | 4 ·25 | 0 ·24 | 0 57 4 ·6 | 31 ·3 | 3 ·6 | 6 ·9 |
| 1 56 47 ·89 | 4 ·29 | 0 ·23 | 0 44 31 ·8 | 31 ·5 | 3 ·5 | 6 ·8 |
| 1 58 31 ·18 | 4 ·32 | 0 ·23 | 0 31 54 ·0 | 31 ·7 | 3 ·5 | 6 ·8 |
| 2 0 15 ·32 | 4 ·36 | 0 ·23 | 0 19 11 ·6 | 31 ·9 | 3 ·5 | 6 ·7 |
| 2 2 0 ·32 | 4 ·39 | 0 ·23 | N.0 6 24 ·4 | 32 ·1 | 3 ·5 | 6 ·7 |
| 2 3 46 ·16 | 4 ·43 | 0 ·23 | S.0 6 27 ·3 | 32 ·2 | 3 ·5 | 6 ·7 |
| [illegible] | 4 ·46 | 0 ·23 | 0 19 23 ·5 | 32 ·4 | 3 ·4 | 6 ·6 |
| | 4 ·49 | 0 ·23 | 0 32 23 ·9 | 32 ·6 | 3 ·4 | 6 ·6 |
| | | 0 ·22 | S.0 45 28 ·4 | —32 ·8 | 3 ·4 | 6 ·6 |

# JULY, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. of Rad. Vect. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 12 8 43·41 | S. 0 42 26·5 | 0·1166563 | 5 32·8 | 222 35 2·1 | N. 0 11 0·6 | 0·1935666 |
| 2 | 12 10 32·46 | 0 55 35·4 | ·1190089 | 5 30·7 | 223 4 51·0 | 0 10 3·0 | ·1932263 |
| 3 | 12 12 22·31 | 1 8 48·3 | ·1213411 | 5 28·6 | 223 34 42·7 | 0 9 5·3 | ·1928846 |
| 4 | 12 14 12·96 | 1 22 5·1 | ·1236530 | 5 26·5 | 224 4 37·1 | 0 8 7·4 | ·1925416 |
| 5 | 12 16 4·40 | 1 35 25·8 | ·1259447 | 5 24·5 | 224 34 34·5 | 0 7 9·4 | ·1921973 |
| 6 | 12 17 56·64 | 1 48 50·3 | ·1282163 | 5 22·4 | 225 4 34·7 | 0 6 11·3 | ·1918517 |
| 7 | 12 19 49·65 | 2 2 18·5 | ·1304679 | 5 20·4 | 225 34 37·9 | 0 5 13·1 | ·1915048 |
| 8 | 12 21 43·44 | 2 15 50·2 | ·1326995 | 5 18·3 | 226 4 44·0 | 0 4 14·7 | ·1911567 |
| 9 | 12 23 38·00 | 2 29 25·4 | ·1349113 | 5 16·3 | 226 34 52·9 | 0 3 16·2 | ·1908073 |
| 10 | 12 25 33·33 | 2 43 3·9 | ·1371032 | 5 14·3 | 227 5 4·9 | 0 2 17·7 | ·1904568 |
| 11 | 12 27 29·42 | 2 56 45·6 | ·1392753 | 5 12·3 | 227 35 19·8 | 0 1 19·0 | ·1901050 |
| 12 | 12 29 26·26 | 3 10 30·4 | ·1414277 | 5 10·2 | 228 5 37·6 | N. 0 0 20·2 | ·1897521 |
| 13 | 12 31 23·84 | 3 24 18·1 | ·1435604 | 5 8·3 | 228 35 58·2 | S. 0 0 38·6 | ·1893981 |
| 14 | 12 33 22·16 | 3 38 8·6 | ·1456733 | 5 6·3 | 229 6 21·9 | 0 1 37·6 | ·1890430 |
| 15 | 12 35 21·22 | 3 52 1·8 | ·1477668 | 5 4·4 | 229 36 48·5 | 0 2 36·6 | ·1886868 |
| 16 | 12 37 21·00 | 4 5 57·5 | ·1498408 | 5 2·4 | 230 7 18·0 | 0 3 35·7 | ·1883295 |
| 17 | 12 39 21·50 | 4 19 55·6 | ·1518954 | 5 0·5 | 230 37 50·6 | 0 4 35·0 | ·1879712 |
| 18 | 12 41 22·72 | 4 33 56·0 | ·1539308 | 4 58·6 | 231 8 26·3 | 0 5 34·2 | ·1876119 |
| 19 | 12 43 24·66 | 4 47 58·5 | ·1559472 | 4 56·7 | 231 39 5·0 | 0 6 33·6 | ·1872516 |
| 20 | 12 45 27·29 | 5 2 3·0 | ·1579447 | 4 54·7 | 232 9 46·8 | 0 7 33·0 | ·1868903 |
| 21 | 12 47 30·63 | 5 16 9·3 | ·1599236 | 4 52·9 | 232 40 31·8 | 0 8 32·5 | ·1865281 |
| 22 | 12 49 34·66 | 5 30 17·2 | ·1618840 | 4 51·0 | 233 11 19·8 | 0 9 32·0 | ·1861650 |
| 23 | 12 51 39·39 | 5 44 26·7 | ·1638263 | 4 49·2 | 233 42 11·0 | 0 10 31·6 | ·1858011 |
| 24 | 12 53 44·80 | 5 58 37·6 | ·1657507 | 4 47·3 | 234 13 5·3 | 0 11 31·3 | ·1854363 |
| 25 | 12 55 50·90 | 6 12 49·8 | ·1676575 | 4 45·5 | 234 44 2·7 | 0 12 31·0 | ·1850706 |
| 26 | 12 57 57·67 | 6 27 3·1 | ·1695469 | 4 43·7 | 235 15 3·2 | 0 13 30·7 | ·1847042 |
| 27 | 13 0 5·13 | 6 41 17·5 | ·1714192 | 4 41·9 | 235 46 6·9 | 0 14 30·5 | ·1843370 |
| 28 | 13 2 13·27 | 6 55 32·7 | ·1732746 | 4 40·0 | 236 17 13·7 | 0 15 30·3 | ·1839691 |
| 29 | 13 4 22·09 | 7 9 48·7 | ·1751133 | 4 38·2 | 236 48 23·5 | 0 16 30·1 | ·1836006 |
| 30 | 13 6 31·59 | 7 24 5·3 | ·1769355 | 4 36·4 | 237 19 36·6 | 0 17 30·0 | ·1832314 |
| 31 | 13 8 41·79 | 7 38 22·5 | ·1787415 | 4 34·6 | 237 50 52·8 | 0 18 29·8 | ·1828617 |
| 32 | 13 10 52·67 | S. 7 52 40·2 | 0·1805314 | 4 32·9 | 238 22 12·3 | S. 0 19 29·7 | 0·1824916 |

# JULY, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 2 9 8·55 | + 4·53 | 0·22 | S. 0 45 28·4 | — 32·8 | 3·4 | 6·6 |
| 2 10 57·62 | 4·56 | 0·22 | 0 58 37·0 | 32·9 | 3·4 | 6·5 |
| 2 12 47·49 | 4·59 | 0·22 | 1 11 49·7 | 33·1 | 3·4 | 6·5 |
| 2 14 38·16 | 4·63 | 0·22 | 1 25 6·2 | 33·3 | 3·3 | 6·4 |
| 2 16 29·62 | 4·66 | 0·22 | 1 38 26·6 | 33·4 | 3·3 | 6·4 |
| 2 18 21·87 | 4·69 | 0·22 | 1 51 50·8 | 33·6 | 3·3 | 6·4 |
| 2 20 14·89 | 4·73 | 0·22 | 2 5 18·6 | 33·7 | 3·3 | 6·3 |
| 2 22 8·69 | 4·76 | 0·22 | 2 18 50·0 | 33·9 | 3·3 | 6·3 |
| 2 24 3·26 | 4·79 | 0·22 | 2 32 24·8 | 34·0 | 3·3 | 6·3 |
| 2 25 58·60 | 4·82 | 0·22 | 2 46 2·9 | 34·2 | 3·3 | 6·3 |
| 2 27 54·69 | 4·85 | 0·21 | 2 59 44·1 | 34·3 | 3·2 | 6·2 |
| 2 29 51·53 | 4·88 | 0·21 | 3 13 28·4 | 34·4 | 3·2 | 6·2 |
| 12 31 49·10 | 4·91 | 0·21 | 3 27 15·6 | 34·5 | 3·2 | 6·2 |
| 12 33 47·41 | 4·95 | 0·21 | 3 41 5·6 | 34·6 | 3·2 | 6·1 |
| 12 35 46·47 | 4·98 | 0·21 | 3 54 58·2 | 34·7 | 3·2 | 6·1 |
| 12 37 46·24 | 5·01 | 0·21 | 4 8 53·3 | 34·8 | 3·1 | 6·1 |
| 12 39 46·73 | 5·04 | 0·21 | 4 22 50·8 | 34·9 | 3·1 | 6·1 |
| 12 41 47·93 | 5·06 | 0·21 | 4 36 50·5 | 35·0 | 3·1 | 6·0 |
| 12 43 49·86 | 5·09 | 0·21 | 4 50 52·3 | 35·1 | 3·1 | 6·0 |
| 12 45 52·48 | 5·12 | 0·21 | 5 4 56·1 | 35·2 | 3·1 | 6·0 |
| 12 47 55·80 | 5·15 | 0·20 | 5 19 1·7 | 35·3 | 3·0 | 5·9 |
| 12 49 59·80 | 5·18 | 0·20 | 5 33 8·8 | 35·3 | 3·0 | 5·9 |
| 12 52 4·51 | 5·21 | 0·20 | 5 47 17·5 | 35·4 | 3·0 | 5·9 |
| 12 54 9·90 | 5·24 | 0·20 | 6 1 27·5 | 35·4 | 3·0 | 5·9 |
| 12 56 15·97 | 5·27 | 0·20 | 6 15 38·8 | 35·5 | 3·0 | 5·8 |
| 12 58 22·71 | 5·30 | 0·20 | 6 29 51·2 | 35·5 | 3·0 | 5·8 |
| 13 0 30·15 | 5·32 | 0·20 | 6 44 4·7 | 35·6 | 3·0 | 5·8 |
| 13 2 38·26 | 5·35 | 0·20 | 6 58 19·0 | 35·6 | 3·0 | 5·8 |
| 4 47·05 | 5·38 | 0·20 | 7 12 34·1 | 35·6 | 3·0 | 5·7 |
| 56·52 | 5·41 | 0·20 | 7 26 49·8 | 35·7 | 3·0 | 5·7 |
| 6·70 | 5·44 | 0·19 | 7 41 6·1 | 35·7 | 2·9 | 5·7 |
| | +5·4 | ·9 | S. 7 55 22·8 | — 35·7 | 2·9 | 5·7 |

# AUGUST, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | |
|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ |
| 1 | 13 10 52·67 | S. 7 52 40·2 | 0·1805314 | 4 32·9 | 238 22 12·3 | S. 0 19 29·7 |
| 2 | 13 13 4·25 | 8 6 58·3 | ·1823055 | 4 31·2 | 238 53 35·0 | 0 20 29·6 |
| 3 | 13 15 16·54 | 8 21 16·6 | ·1840637 | 4 29·5 | 239 25 0·9 | 0 21 29·5 |
| 4 | 13 17 29·52 | 8 35 35·0 | ·1858062 | 4 27·8 | 239 56 30·2 | 0 22 29·4 |
| 5 | 13 19 43·21 | 8 49 53·4 | ·1875331 | 4 26·0 | 240 28 2·7 | 0 23 29·2 |
| 6 | 13 21 57·60 | 9 4 11·7 | ·1892444 | 4 24·3 | 240 59 38·5 | 0 24 29·1 |
| 7 | 13 24 12·70 | 9 18 29·7 | ·1909401 | 4 22·6 | 241 31 17·6 | 0 25 28·9 |
| 8 | 13 26 28·50 | 9 32 47·2 | ·1926204 | 4 20·9 | 242 2 59·9 | 0 26 28·7 |
| 9 | 13 28 45·01 | 9 47 4·2 | ·1942853 | 4 19·3 | 242 34 45·4 | 0 27 28·5 |
| 10 | 13 31 2·23 | 10 1 20·4 | ·1959349 | 4 17·6 | 243 6 34·2 | 0 28 28·2 |
| 11 | 13 33 20·16 | 10 15 35·7 | ·1975692 | 4 15·9 | 243 38 26·3 | 0 29 27·9 |
| 12 | 13 35 38·79 | 10 29 50·0 | ·1991885 | 4 14·3 | 244 10 21·6 | 0 30 27·5 |
| 13 | 13 37 58·14 | 10 44 3·0 | ·2007926 | 4 12·7 | 244 42 20·3 | 0 31 27·1 |
| 14 | 13 40 18·20 | 10 58 14·6 | ·2023819 | 4 11·1 | 245 14 22·2 | 0 32 26·6 |
| 15 | 13 42 38·97 | 11 12 24·7 | ·2039563 | 4 9·5 | 245 46 27·6 | 0 33 26·0 |
| 16 | 13 45 0·45 | 11 26 33·1 | ·2055161 | 4 7·9 | 246 18 36·3 | 0 34 25·4 |
| 17 | 13 47 22·63 | 11 40 39·6 | ·2070612 | 4 6·4 | 246 50 48·4 | 0 35 24·7 |
| 18 | 13 49 45·53 | 11 54 44·1 | ·2085918 | 4 4·8 | 247 23 3·9 | 0 36 23·9 |
| 19 | 13 52 9·13 | 12 8 46·3 | ·2101082 | 4 3·3 | 247 55 22·8 | 0 37 23·0 |
| 20 | 13 54 33·44 | 12 22 46·2 | ·2116107 | 4 1·7 | 248 27 45·0 | 0 38 22·0 |
| 21 | 13 56 58·45 | 12 36 43·6 | ·2130993 | 4 0·2 | 249 0 10·7 | 0 39 20·9 |
| 22 | 13 59 24·18 | 12 50 38·2 | ·2145744 | 3 58·7 | 249 32 39·7 | 0 40 19·7 |
| 23 | 14 1 50·61 | 13 4 30·0 | ·2160363 | 3 57·2 | 250 5 12·1 | 0 41 18·4 |
| 24 | 14 4 17·76 | 13 18 18·7 | ·2174850 | 3 55·7 | 250 37 47·8 | 0 42 17·0 |
| 25 | 14 6 45·62 | 13 32 4·3 | ·2189209 | 3 54·3 | 251 10 27·0 | 0 43 15·4 |
| 26 | 14 9 14·20 | 13 45 46·5 | ·2203442 | 3 52·9 | 251 43 9·4 | 0 44 13·7 |
| 27 | 14 11 43·51 | 13 59 25·3 | ·2217550 | 3 51·4 | 252 15 55·3 | 0 45 11·9 |
| 28 | 14 14 13·56 | 14 13 0·4 | ·2231535 | 3 50·0 | 252 48 44·7 | 0 46 10·0 |
| 29 | 14 16 44·33 | 14 26 31·7 | ·2245398 | 3 48·5 | 253 21 37·5 | 0 47 7·9 |
| 30 | 14 19 [illegible] | [illegible] 0·1 | ·2259140 | 3 47·1 | 253 54 33·8 | 0 48 5·6 |
| 31 | 14 2[illegible] | | ·2272763 | 3 45·7 | 254 27 33·5 | 0 49 3·2 |
| 32 | 14 [illegible] | | 8 | 3 44·3 | 25[illegible] 6·8 | S. 0 50 0·6 |

# AUGUST, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 13 11 17 ·55 | + 5 ·47 | 0 ·19 | S. 7 55 22 ·8 | −35 ·7 | 2 ·9 | 5 ·7 |
| 13 13 29 ·10 | 5 ·50 | 0 ·19 | 8 9 39 ·9 | 35 ·7 | 2 ·9 | 5 ·6 |
| 13 15 41 ·36 | 5 ·53 | 0 ·19 | 8 23 57 ·2 | 35 ·7 | 2 ·9 | 5 ·6 |
| 13 17 54 ·32 | 5 ·55 | 0 ·19 | 8 38 14 ·6 | 35 ·7 | 2 ·9 | 5 ·6 |
| 13 20 7 ·98 | 5 ·58 | 0 ·19 | 8 52 31 ·9 | 35 ·7 | 2 ·9 | 5 ·6 |
| 13 22 22 ·34 | 5 ·61 | 0 ·18 | 9 6 49 ·2 | 35 ·7 | 2 ·8 | 5 ·5 |
| 13 24 37 ·41 | 5 ·64 | 0 ·18 | 9 21 6 ·1 | 35 ·7 | 2 ·8 | 5 ·5 |
| 13 26 53 ·19 | 5 ·67 | 0 ·18 | 9 35 22 ·6 | 35 ·7 | 2 ·8 | 5 ·5 |
| 13 29 9 ·67 | 5 ·70 | 0 ·18 | 9 49 38 ·5 | 35 ·6 | 2 ·8 | 5 ·5 |
| 13 31 26 ·86 | 5 ·73 | 0 ·18 | 10 3 53 ·5 | 35 ·6 | 2 ·8 | 5 ·5 |
| 13 33 44 ·76 | 5 ·76 | 0 ·18 | 10 18 7 ·6 | 35 ·6 | 2 ·8 | 5 ·4 |
| 13 36 3 ·36 | 5 ·79 | 0 ·18 | 10 32 20 ·7 | 35 ·5 | 2 ·8 | 5 ·4 |
| 13 38 22 ·67 | 5 ·82 | 0 ·18 | 10 46 32 ·6 | 35 ·5 | 2 ·8 | 5 ·4 |
| 13 40 42 ·70 | 5 ·85 | 0 ·18 | 11 0 43 ·0 | 35 ·4 | 2 ·8 | 5 ·4 |
| 13 43 3 ·44 | 5 ·88 | 0 ·18 | 11 14 51 ·8 | 35 ·3 | 2 ·8 | 5 ·4 |
| 13 45 24 ·89 | 5 ·91 | 0 ·18 | 11 28 59 ·0 | 35 ·3 | 2 ·8 | 5 ·4 |
| 13 47 47 ·03 | 5 ·94 | 0 ·18 | 11 43 4 ·2 | 35 ·2 | 2 ·7 | 5 ·3 |
| 13 50 9 ·90 | 5 ·97 | 0 ·18 | 11 57 7 ·4 | 35 ·1 | 2 ·7 | 5 ·3 |
| 13 52 33 ·46 | 6 ·00 | 0 ·18 | 12 11 8 ·3 | 35 ·0 | 2 ·7 | 5 ·3 |
| 13 54 57 ·74 | 6 ·03 | 0 ·18 | 12 25 6 ·9 | 34 ·9 | 2 ·7 | 5 ·3 |
| 13 57 22 ·71 | 6 ·06 | 0 ·18 | 12 39 3 ·0 | 34 ·8 | 2 ·7 | 5 ·3 |
| 13 59 48 ·40 | 6 ·09 | 0 ·18 | 12 52 56 ·3 | 34 ·7 | 2 ·7 | 5 ·2 |
| 14 2 14 ·80 | 6 ·11 | 0 ·19 | 13 6 46 ·7 | 34 ·5 | 2 ·7 | 5 ·2 |
| 14 4 41 ·91 | 6 ·14 | 0 ·19 | 13 20 34 ·1 | 34 ·4 | 2 ·7 | 5 ·2 |
| 14 7 9 ·74 | 6 ·17 | 0 ·19 | 13 34 18 ·3 | 34 ·3 | 2 ·7 | 5 ·2 |
| 14 9 38 ·29 | 6 ·20 | 0 ·19 | 13 47 59 ·1 | 34 ·1 | 2 ·7 | 5 ·2 |
| 14 12 7 ·57 | 6 ·24 | 0 ·19 | 14 1 36 ·5 | 34 ·0 | 2 ·6 | 5 ·1 |
| 14 14 37 ·59 | 6 ·27 | 0 ·19 | 14 15 10 ·2 | 33 ·8 | 2 ·6 | 5 ·1 |
| 14 17 8 ·32 | 6 ·30 | 0 ·19 | 14 28 40 ·1 | 33 ·7 | 2 ·6 | 5 ·1 |
| 14 19 39 ·81 | 6 ·33 | 0 ·19 | 14 42 6 ·1 | 33 ·5 | 2 ·6 | 5 ·1 |
| 14 22 12 ·05 | 6 ·36 | 0 ·19 | 14 55 27 ·9 | 33 ·3 | 2 ·6 | 5 ·1 |
| 14 24 45 ·04 | + 6 ·39 | 0 ·19 | S. 15 8 45 ·6 | −33 ·2 | 2 ·6 | 5 ·1 |

# SEPTEMBER, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | R |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 14 24 21·14 | S. 15 6 41·5 | 0·2286268 | 3 44·3 | 255 0 36·8 | S. 0 50 0·6 | 0·1 |
| 2 | 14 26 54·91 | 15 19 56·2 | ·2299656 | 3 42·9 | 255 33 43·4 | 0 50 57·8 | ·1 |
| 3 | 14 29 29·44 | 15 33 6·4 | ·2312929 | 3 41·5 | 256 6 53·6 | 0 51 54·9 | ·1 |
| 4 | 14 32 4·73 | 15 46 11·8 | ·2326086 | 3 40·2 | 256 40 7·1 | 0 52 51·7 | ·16 |
| 5 | 14 34 40·79 | 15 59 12·3 | ·2339128 | 3 38·8 | 257 13 24·1 | 0 53 48·4 | ·16 |
| 6 | 14 37 17·60 | 16 12 7·7 | ·2352056 | 3 37·5 | 257 46 44·4 | 0 54 44·8 | ·16 |
| 7 | 14 39 55·19 | 16 24 57·8 | ·2364869 | 3 36·2 | 258 20 8·2 | 0 55 41·0 | ·16 |
| 8 | 14 42 33·54 | 16 37 42·4 | ·2377568 | 3 34·9 | 258 53 35·4 | 0 56 37·0 | ·16 |
| 9 | 14 45 12·67 | 16 50 21·3 | ·2390154 | 3 33·6 | 259 27 6·0 | 0 57 32·8 | ·16 |
| 10 | 14 47 52·56 | 17 2 54·4 | ·2402628 | 3 32·3 | 260 0 40·1 | 0 58 28·3 | ·16 |
| 11 | 14 50 33·23 | 17 15 21·4 | ·2414991 | 3 31·1 | 260 34 17·6 | 0 59 23·6 | ·16 |
| 12 | 14 53 14·67 | 17 27 42·2 | ·2427244 | 3 29·8 | 261 7 58·7 | 1 0 18·6 | ·16 |
| 13 | 14 55 56·88 | 17 39 56·4 | ·2439387 | 3 28·6 | 261 41 43·1 | 1 1 13·4 | ·16 |
| 14 | 14 58 39·85 | 17 52 4·1 | ·2451421 | 3 27·3 | 262 15 31·1 | 1 2 7·9 | ·16 |
| 15 | 15 1 23·59 | 18 4 4·9 | ·2463347 | 3 26·1 | 262 49 22·5 | 1 3 2·2 | ·16 |
| 16 | 15 4 8·09 | 18 15 58·7 | ·2475168 | 3 24·9 | 263 23 17·3 | 1 3 56·1 | ·16 |
| 17 | 15 6 53·35 | 18 27 45·2 | ·2486885 | 3 23·7 | 263 57 15·6 | 1 4 49·8 | ·16 |
| 18 | 15 9 39·36 | 18 39 24·3 | ·2498499 | 3 22·6 | 264 31 17·2 | 1 5 43·2 | ·16 |
| 19 | 15 12 26·13 | 18 50 55·8 | ·2510014 | 3 21·4 | 265 5 22·2 | 1 6 36·3 | ·16 |
| 20 | 15 15 13·66 | 19 2 19·4 | ·2521431 | 3 20·2 | 265 39 30·6 | 1 7 29·1 | ·16 |
| 21 | 15 18 1·93 | 19 13 35·1 | ·2532752 | 3 19·1 | 266 13 42·4 | 1 8 21·6 | ·16 |
| 22 | 15 20 50·96 | 19 24 42·5 | ·2543977 | 3 18·0 | 266 47 57·5 | 1 9 13·7 | ·16 |
| 23 | 15 23 40·74 | 19 35 41·5 | ·2555110 | 3 16·9 | 267 22 15·9 | 1 10 5·6 | ·16 |
| 24 | 15 26 31·26 | 19 46 32·0 | ·2566152 | 3 15·8 | 267 56 37·8 | 1 10 57·1 | ·16 |
| 25 | 15 29 22·55 | 19 57 13·8 | ·2577104 | 3 14·7 | 268 31 3·1 | 1 11 48·2 | ·16 |
| 26 | 15 32 14·60 | 20 7 46·6 | ·2587968 | 3 13·6 | 269 5 31·8 | 1 12 39·0 | ·16 |
| 27 | 15 35 7·41 | 20 18 10·4 | ·2598745 | 3 12·6 | 269 40 3·9 | 1 13 29·5 | ·16 |
| 28 | 15 38 0·99 | 20 28 25·0 | ·2609436 | 3 11·5 | 270 14 39·4 | 1 14 19·6 | ·16 |
| 29 | 15 40 55·32 | 20 38 30·0 | ·2620043 | 3 10·5 | 270 49 18·4 | 1 15 9·3 | ·16 |
| 30 | 15 43 50·41 | 20 48 25·5 | ·2630566 | 3 9·4 | 271 24 0·6 | 1 15 58·6 | ·16 |
| 31 | 15 46 46·25 | S. 20 58 11·1 | 0·2641008 | 3 8·4 | 271 58 46·2 | S. 1 16 47·5 | 0·16 |

# SEPTEMBER, 1839.

At Transit over the Meridian of Greenwich.

| *rent* ght sion. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 45 ·04 | + 6 ·39 | 0 ·19 | S. 15 8 45 ·6 | —33 ·2 | 2 ·6 | 5 ·1 |
| 18 ·78 | 6 ·42 | 0 ·19 | 15 21 58 ·8 | 33 ·0 | 2 ·6 | 5 ·1 |
| 53 ·28 | 6 ·46 | 0 ·19 | 15 35 7 ·5 | 32 ·8 | 2 ·6 | 5 ·1 |
| 28 ·54 | 6 ·49 | 0 ·18 | 15 48 11 ·3 | 32 ·6 | 2 ·6 | 5 ·0 |
| 4 ·57 | 6 ·52 | 0 ·18 | 16 1 10 ·4 | 32 ·4 | 2 ·6 | 5 ·0 |
| 41 ·35 | 6 ·55 | 0 ·18 | 16 14 4 ·4 | 32 ·1 | 2 ·6 | 5 ·0 |
| 18 ·91 | 6 ·58 | 0 ·18 | 16 26 53 ·0 | 31 ·9 | 2 ·6 | 5 ·0 |
| 57 ·24 | 6 ·61 | 0 ·18 | 16 39 36 ·1 | 31 ·7 | 2 ·6 | 5 ·0 |
| 36 ·34 | 6 ·64 | 0 ·18 | 16 52 13 ·5 | 31 ·4 | 2 ·6 | 5 ·0 |
| 16 ·20 | 6 ·68 | 0 ·18 | 17 4 45 ·0 | 31 ·2 | 2 ·5 | 4 ·9 |
| 56 ·84 | 6 ·71 | 0 ·18 | 17 17 10 ·4 | 30 ·9 | 2 ·5 | 4 ·9 |
| 38 ·25 | 6 ·74 | 0 ·18 | 17 29 29 ·6 | 30 ·7 | 2 ·5 | 4 ·9 |
| 20 ·43 | 6 ·77 | 0 ·18 | 17 41 42 ·2 | 30 ·4 | 2 ·5 | 4 ·9 |
| 3 ·38 | 6 ·81 | 0 ·18 | 17 53 48 ·3 | 30 ·1 | 2 ·5 | 4 ·9 |
| 47 ·09 | 6 ·84 | 0 ·18 | 18 5 47 ·5 | 29 ·8 | 2 ·5 | 4 ·9 |
| 31 ·56 | 6 ·87 | 0 ·18 | 18 17 39 ·7 | 29 ·5 | 2 ·5 | 4 ·8 |
| 16 ·79 | 6 ·90 | 0 ·18 | 18 29 24 ·6 | 29 ·2 | 2 ·5 | 4 ·8 |
| 2 ·77 | 6 ·93 | 0 ·18 | 18 41 2 ·0 | 28 ·9 | 2 ·5 | 4 ·8 |
| 49 ·51 | 6 ·96 | 0 ·18 | 18 52 31 ·9 | 28 ·6 | 2 ·5 | 4 ·8 |
| 37 ·01 | 6 ·99 | 0 ·18 | 19 3 53 ·8 | 28 ·3 | 2 ·5 | 4 ·8 |
| 25 ·25 | 7 ·03 | 0 ·18 | 19 15 7 ·9 | 27 ·9 | 2 ·5 | 4 ·8 |
| 14 ·26 | 7 ·06 | 0 ·18 | 19 26 13 ·6 | 27 ·6 | 2 ·5 | 4 ·8 |
| 4 ·01 | 7 ·09 | 0 ·18 | 19 37 10 ·9 | 27 ·2 | 2 ·5 | 4 ·8 |
| 54 ·50 | 7 ·12 | 0 ·18 | 19 47 59 ·7 | 26 ·9 | 2 ·5 | 4 ·8 |
| 45 ·76 | 7 ·15 | 0 ·17 | 19 58 39 ·8 | 26 ·5 | 2 ·4 | 4 ·7 |
| 37 ·79 | 7 ·18 | 0 ·17 | 20 9 11 ·0 | 26 ·1 | 2 ·4 | 4 ·7 |
| 30 ·58 | 7 ·22 | 0 ·17 | 20 19 33 ·1 | 25 ·7 | 2 ·4 | 4 ·7 |
| 24 ·14 | 7 ·25 | 0 ·17 | 20 29 46 ·0 | 25 ·3 | 2 ·4 | 4 ·7 |
| 18 ·44 | 7 ·28 | 0 ·17 | 20 39 49 ·4 | 24 ·9 | 2 ·4 | 4 ·7 |
| 13 ·51 | 7 ·31 | 0 ·17 | 20 49 43 ·2 | 24 ·5 | 2 ·4 | 4 ·7 |
| 9 ·32 | + 7 ·34 | 0 ·17 | S. 20 59 27 ·1 | —24 ·1 | 2 ·4 | 4 ·7 |

# OCTOBER, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | |
|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ |
| 1 | 15 46 46·25 | S. 20 58 11·1 | 0·2641008 | 3 8·4 | 271 58 46·2 | S. 1 16 47·5 |
| 2 | 15 49 42·84 | 21 7 46·7 | ·2651367 | 3 7·4 | 272 33 35·1 | 1 17 36·1 |
| 3 | 15 52 40·18 | 21 17 12·1 | ·2661645 | 3 6·4 | 273 8 27·3 | 1 18 24·2 |
| 4 | 15 55 38·26 | 21 26 27·0 | ·2671841 | 3 5·5 | 273 43 22·7 | 1 19 12·0 |
| 5 | 15 58 37·08 | 21 35 31·4 | ·2681956 | 3 4·6 | 274 18 21·4 | 1 19 59·3 |
| 6 | 16 1 36·64 | 21 44 24·9 | ·2691989 | 3 3·7 | 274 53 23·4 | 1 20 46·2 |
| 7 | 16 4 36·93 | 21 53 7·4 | ·2701942 | 3 2·8 | 275 28 28·6 | 1 21 32·6 |
| 8 | 16 7 37·95 | 22 1 38·8 | ·2711814 | 3 1·8 | 276 3 37·1 | 1 22 18·7 |
| 9 | 16 10 39·69 | 22 9 58·8 | ·2721606 | 3 0·9 | 276 38 48·9 | 1 23 4·2 |
| 10 | 16 13 42·14 | 22 18 7·1 | ·2731319 | 3 0·0 | 277 14 3·9 | 1 23 49·4 |
| 11 | 16 16 45·29 | 22 26 3·7 | ·2740953 | 2 59·1 | 277 49 22·2 | 1 24 34·0 |
| 12 | 16 19 49·12 | 22 33 48·4 | ·2750511 | 2 58·2 | 278 24 43·7 | 1 25 18·2 |
| 13 | 16 22 53·64 | 22 41 20·9 | ·2759993 | 2 57·3 | 279 0 8·4 | 1 26 1·9 |
| 14 | 16 25 58·83 | 22 48 41·1 | ·2769399 | 2 56·4 | 279 35 36·2 | 1 26 45·1 |
| 15 | 16 29 4·68 | 22 55 48·9 | ·2778732 | 2 55·6 | 280 11 7·2 | 1 27 27·9 |
| 16 | 16 32 11·18 | 23 2 43·9 | ·2787993 | 2 54·8 | 280 46 41·3 | 1 28 10·1 |
| 17 | 16 35 18·31 | 23 9 26·1 | ·2797182 | 2 54·0 | 281 22 18·4 | 1 28 51·9 |
| 18 | 16 38 26·07 | 23 15 55·3 | ·2806301 | 2 53·2 | 281 57 58·6 | 1 29 33·1 |
| 19 | 16 41 34·44 | 23 22 11·3 | ·2815353 | 2 52·4 | 282 33 41·8 | 1 30 13·8 |
| 20 | 16 44 43·41 | 23 28 13·9 | ·2824338 | 2 51·6 | 283 9 28·1 | 1 30 54·0 |
| 21 | 16 47 52·98 | 23 34 3·0 | ·2833259 | 2 50·8 | 283 45 17·4 | 1 31 33·6 |
| 22 | 16 51 3·13 | 23 39 38·4 | ·2842116 | 2 50·0 | 284 21 9·7 | 1 32 12·7 |
| 23 | 16 54 13·86 | 23 45 0·0 | ·2850912 | 2 49·2 | 284 57 5·0 | 1 32 51·2 |
| 24 | 16 57 25·15 | 23 50 7·7 | ·2859647 | 2 48·5 | 285 33 3·4 | 1 33 29·2 |
| 25 | 17 0 37·01 | 23 55 1·2 | ·2868324 | 2 47·8 | 286 9 4·8 | 1 34 6·6 |
| 26 | 17 3 49·42 | 23 59 40·6 | ·2876942 | 2 47·1 | 286 45 9·1 | 1 34 43·5 |
| 27 | 17 7 2·36 | 24 4 5·5 | ·2885504 | 2 46·4 | 287 21 16·4 | 1 35 19·7 |
| 28 | 17 10 15·82 | 24 8 15·9 | ·2894009 | 2 4[illegible] | [illegible] | [illegible] |
| 29 | 17 13 29·79 | 24 12 11·7 | ·29024[illegible] | | | |
| 30 | 17 16 44·26 | 24 15 52·7 | ·29108[illegible] | | | |
| 31 | 17 19 59·22 | 24 19 18·8 | ·291919[illegible] | | | |
| 32 | 17 23 14·64 | S. 24 22 29·8 | 0·2927480 | | | |

# OCTOBER, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 7 9·32 | + 7·34 | 0·17 | S. 20 59 27·1 | —24·1 | 2·4 | 4·7 |
| 5·89 | 7·37 | 0·17 | 21 9 0·9 | 23·7 | 2·4 | 4·7 |
| 3·20 | 7·40 | 0·17 | 21 18 24·6 | 23·3 | 2·4 | 4·6 |
| 1·26 | 7·43 | 0·17 | 21 27 37·7 | 22·8 | 2·4 | 4·6 |
| 0·06 | 7·47 | 0·17 | 21 36 40·4 | 22·4 | 2·4 | 4·6 |
| 59·59 | 7·50 | 0·17 | 21 45 32·1 | 21·9 | 2·4 | 4·6 |
| 59·86 | 7·53 | 0·17 | 21 54 12·9 | 21·5 | 2·4 | 4·6 |
| 0·85 | 7·56 | 0·17 | 22 2 42·5 | 21·0 | 2·4 | 4·6 |
| 2·56 | 7·59 | 0·17 | 22 11 0·8 | 20·5 | 2·4 | 4·6 |
| 4·98 | 7·62 | 0·17 | 22 19 7·3 | 20·0 | 2·4 | 4·6 |
| 8·10 | 7·64 | 0·17 | 22 27 2·2 | 19·5 | 2·4 | 4·6 |
| 11·91 | 7·67 | 0·17 | 22 34 45·1 | 19·0 | 2·4 | 4·6 |
| 16·40 | 7·70 | 0·17 | 22 42 15·8 | 18·5 | 2·3 | 4·5 |
| 21·56 | 7·73 | 0·17 | 22 49 34·2 | 18·0 | 2·3 | 4·5 |
| 27·38 | 7·76 | 0·17 | 22 56 40·2 | 17·5 | 2·3 | 4·5 |
| 33·86 | 7·78 | 0·17 | 23 3 33·4 | 17·0 | 2·3 | 4·5 |
| 40·96 | 7·81 | 0·17 | 23 10 13·8 | 16·4 | 2·3 | 4·5 |
| 48·69 | 7·83 | 0·17 | 23 16 41·2 | 15·9 | 2·3 | 4·5 |
| 57·03 | 7·86 | 0·17 | 23 22 55·4 | 15·3 | 2·3 | 4·5 |
| 5·97 | 7·89 | 0·17 | 23 28 56·3 | 14·8 | 2·3 | 4·5 |
| 15·51 | 7·91 | 0·17 | 23 34 43·6 | 14·2 | 2·3 | 4·5 |
| 25·62 | 7·93 | 0·17 | 23 40 17·2 | 13·6 | 2·3 | 4·5 |
| 36·32 | 7·96 | 0·17 | 23 45 37·0 | 13·0 | 2·3 | 4·5 |
| 47·57 | 7·98 | 0·17 | 23 50 42·8 | 12·4 | 2·3 | 4·5 |
| 59·40 | 8·00 | 0·17 | 23 55 34·5 | 11·9 | 2·3 | 4·4 |
| 11·77 | 8·03 | 0·17 | 24 0 12·1 | 11·3 | 2·3 | 4·4 |
| 24·68 | 8·05 | 0·17 | 24 4 35·2 | 10·7 | 2·3 | 4·4 |
| [illegible] | 8·07 | 0·17 | 24 8 43·7 | 10·1 | 2·3 | 4·4 |
| | 8·09 | 0·17 | 24 12 37·7 | 9·4 | 2·3 | 4·4 |
| | 8·11 | 0·17 | 24 16 16·9 | 8·8 | 2·3 | 4·4 |
| | 13 | 0·17 | 24 19 41·2 | 8·2 | 2·3 | 4·4 |
| | | 0·17 | S. 24 22 50·4 | — 7·6 | 2·3 | 4·4 |

# NOVEMBER, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | |
|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ |
| 1 | 17 23 14·64 | S. 24 22 29·8 | 0·2927480 | 2 42·8 | 290 22 35·1 | S. 1 38 12·1 |
| 2 | 17 26 30·53 | 24 25 25·6 | ·2935711 | 2 42·1 | 290 58 59·1 | 1 38 44·8 |
| 3 | 17 29 46·86 | 24 28 6·2 | ·2943887 | 2 41·4 | 291 35 25·8 | 1 39 16·8 |
| 4 | 17 33 3·62 | 24 30 31·3 | ·2952010 | 2 40·7 | 292 11 55·2 | 1 39 48·2 |
| 5 | 17 36 20·79 | 24 32 40·9 | ·2960080 | 2 40·1 | 292 48 27·4 | 1 40 19·0 |
| 6 | 17 39 38·37 | 24 34 34·9 | ·2968098 | 2 39·5 | 293 25 2·2 | 1 40 49·1 |
| 7 | 17 42 56·32 | 24 36 13·1 | ·2976062 | 2 38·9 | 294 1 39·7 | 1 41 18·6 |
| 8 | 17 46 14·63 | 24 37 35·5 | ·2983974 | 2 38·3 | 294 38 19·7 | 1 41 47·4 |
| 9 | 17 49 33·28 | 24 38 42·0 | ·2991834 | 2 37·6 | 295 15 2·4 | 1 42 15·6 |
| 10 | 17 52 52·24 | 24 39 32·5 | ·2999640 | 2 37·0 | 295 51 47·6 | 1 42 43·1 |
| 11 | 17 56 11·51 | 24 40 7·0 | ·3007396 | 2 36·4 | 296 28 35·2 | 1 43 9·9 |
| 12 | 17 59 31·05 | 24 40 25·3 | ·3015100 | 2 35·8 | 297 5 25·4 | 1 43 36·0 |
| 13 | 18 2 50·85 | 24 40 27·4 | ·3022756 | 2 35·1 | 297 42 17·9 | 1 44 1·5 |
| 14 | 18 6 10·90 | 24 40 13·3 | ·3030364 | 2 34·5 | 298 19 12·8 | 1 44 26·3 |
| 15 | 18 9 31·17 | 24 39 42·9 | ·3037926 | 2 33·9 | 298 56 10·1 | 1 44 50·3 |
| 16 | 18 12 51·65 | 24 38 56·1 | ·3045443 | 2 33·3 | 299 33 9·6 | 1 45 13·7 |
| 17 | 18 16 12·31 | 24 37 52·9 | ·3052916 | 2 32·7 | 300 10 11·4 | 1 45 36·4 |
| 18 | 18 19 33·13 | 24 36 33·3 | ·3060346 | 2 32·1 | 300 47 15·5 | 1 45 58·4 |
| 19 | 18 22 54·10 | 24 34 57·2 | ·3067734 | 2 31·5 | 301 24 21·9 | 1 46 19·6 |
| 20 | 18 26 15·21 | 24 33 4·6 | ·3075083 | 2 30·9 | 302 1 30·6 | 1 46 40·1 |
| 21 | 18 29 36·43 | 24 30 55·5 | ·3082393 | 2 30·3 | 302 38 41·5 | 1 47 0·0 |
| 22 | 18 32 57·76 | 24 28 30·0 | ·3089667 | 2 29·7 | 303 15 54·5 | 1 47 19·0 |
| 23 | 18 36 19·17 | 24 25 47·9 | ·3096904 | 2 29·1 | 303 53 9·6 | 1 47 37·4 |
| 24 | 18 39 40·65 | 24 22 49·4 | ·3104106 | 2 28·5 | 304 30 26·8 | 1 47 54·9 |
| 25 | 18 43 2·18 | 24 19 34·3 | ·3111272 | 2 28·0 | 305 7 46·0 | 1 48 11·8 |
| 26 | 18 46 23·74 | 24 16 2·7 | ·3118403 | 2 27·4 | 305 45 7·1 | 1 48 27·9 |
| 27 | 18 49 45·32 | 24 12 14·7 | ·3125500 | 2 26·8 | 306 22 30·1 | 1 48 43·2 |
| 28 | 18 53 6·91 | 24 8 10·1 | ·3132562 | 2 26·2 | 306 59 55·0 | 1 48 57·8 |
| 29 | 18 56 28·47 | 24 3 49·1 | ·3139591 | 2 [illegible] | | |
| 30 | 18 59 50·01 | 23 59 11·6 | ·3146586 | [illegible] | | |
| 31 | 19 3 11·50 | S. 23 54 17·8 | 0·315354 | | | |

# NOVEMBER, 1839.

At Transit over the Meridian of Greenwich.

| Day of the Month. | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|---|
| | h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 1 | 17 23 36 ·77 | + 8 ·15 | 0 ·17 | S. 24 22 50 ·4 | − 7 ·6 | 2 ·3 | 4 ·4 |
| 2 | 17 26 52 ·62 | 8 ·17 | 0 ·17 | 24 25 44 ·4 | 6 ·9 | 2 ·3 | 4 ·4 |
| 3 | 17 30 8 ·90 | 8 ·19 | 0 ·17 | 24 28 23 ·2 | 6 ·3 | 2 ·3 | 4 ·4 |
| 4 | 17 33 25 ·62 | 8 ·21 | 0 ·16 | 24 30 46 ·5 | 5 ·7 | 2 ·2 | 4 ·3 |
| 5 | 17 36 42 ·74 | 8 ·23 | 0 ·16 | 24 32 54 ·4 | 5 ·0 | 2 ·2 | 4 ·3 |
| 6 | 17 40 0 ·27 | 8 ·24 | 0 ·16 | 24 34 46 ·6 | 4 ·3 | 2 ·2 | 4 ·3 |
| 7 | 17 43 18 ·17 | 8 ·25 | 0 ·16 | 24 36 23 ·0 | 3 ·7 | 2 ·2 | 4 ·3 |
| 8 | 17 46 36 ·43 | 8 ·27 | 0 ·16 | 24 37 43 ·6 | 3 ·0 | 2 ·2 | 4 ·3 |
| 9 | 17 49 55 ·03 | 8 ·28 | 0 ·16 | 24 38 48 ·3 | 2 ·4 | 2 ·2 | 4 ·3 |
| 10 | 17 53 13 ·94 | 8 ·29 | 0 ·16 | 24 39 37 ·0 | 1 ·7 | 2 ·2 | 4 ·3 |
| 11 | 17 56 33 ·16 | 8 ·31 | 0 ·16 | 24 40 9 ·8 | 1 ·0 | 2 ·2 | 4 ·3 |
| 12 | 17 59 52 ·65 | 8 ·32 | 0 ·16 | 24 40 26 ·3 | − 0 ·4 | 2 ·2 | 4 ·3 |
| 13 | 18 3 12 ·39 | 8 ·33 | 0 ·16 | 24 40 26 ·7 | + 0 ·3 | 2 ·2 | 4 ·3 |
| 14 | 18 6 32 ·38 | 8 ·34 | 0 ·16 | 24 40 10 ·9 | 1 ·0 | 2 ·2 | 4 ·3 |
| 15 | 18 9 52 ·59 | 8 ·35 | 0 ·16 | 24 39 38 ·8 | 1 ·7 | 2 ·2 | 4 ·3 |
| 16 | 18 13 13 ·01 | 8 ·35 | 0 ·16 | 24 38 50 ·3 | 2 ·4 | 2 ·2 | 4 ·3 |
| 17 | 18 16 33 ·60 | 8 ·36 | 0 ·16 | 24 37 45 ·3 | 3 ·0 | 2 ·2 | 4 ·2 |
| 18 | 18 19 54 ·35 | 8 ·36 | 0 ·16 | 24 36 24 ·0 | 3 ·7 | 2 ·2 | 4 ·2 |
| 19 | 18 23 15 ·25 | 8 ·37 | 0 ·16 | 24 34 46 ·2 | 4 ·4 | 2 ·2 | 4 ·2 |
| 20 | 18 26 36 ·29 | 8 ·37 | 0 ·16 | 24 32 51 ·9 | 5 ·1 | 2 ·2 | 4 ·2 |
| 21 | 18 29 57 ·45 | 8 ·38 | 0 ·16 | 24 30 41 ·1 | 5 ·8 | 2 ·2 | 4 ·2 |
| 22 | 18 33 18 ·70 | 8 ·38 | 0 ·16 | 24 28 13 ·9 | 6 ·5 | 2 ·2 | 4 ·2 |
| 23 | 18 36 40 ·03 | 8 ·39 | 0 ·16 | 24 25 30 ·2 | 7 ·2 | 2 ·2 | 4 ·2 |
| 24 | 18 40 1 ·43 | 8 ·39 | 0 ·16 | 24 22 30 ·0 | 7 ·9 | 2 ·2 | 4 ·2 |
| 25 | 18 43 22 ·89 | 8 ·39 | 0 ·16 | 24 19 13 ·3 | 8 ·5 | 2 ·2 | 4 ·2 |
| 26 | 18 46 44 ·37 | 8 ·39 | 0 ·16 | 24 15 40 ·1 | 9 ·2 | 2 ·2 | 4 ·2 |
| 27 | 18 50 5 ·87 | 8 ·40 | 0 ·16 | 24 11 50 ·5 | 9 ·9 | 2 ·2 | 4 ·2 |
| [illegible] | [illegible] 7 ·38 | 8 ·40 | 0 ·16 | 24 7 44 ·3 | 10 ·6 | 2 ·2 | 4 ·2 |
| | 86 | 8 ·39 | 0 ·16 | 24 3 21 ·7 | 11 ·3 | 2 ·2 | 4 ·2 |
| | 31 | 8 ·39 | 0 ·15 | 23 58 42 ·7 | 12 ·0 | 2 ·1 | 4 ·1 |
| | | + 8 ·39 | 0 ·15 | S. 23 53 47 ·4 | + 12 ·6 | 2 ·1 | 4 ·1 |

# DECEMBER, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | L Ra |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 19 3 11·50 | S. 23 54 17·8 | 0·3153548 | 2 24·4 | 308 52 20·5 | S. 1 49 36·9 | 0·14 |
| 2 | 19 6 32·94 | 23 49 7·5 | ·3160476 | 2 23·8 | 309 29 52·6 | 1 49 48·4 | ·14 |
| 3 | 19 9 54·29 | 23 43 40·9 | ·3167370 | 2 23·3 | 310 7 26·4 | 1 49 59·1 | ·14 |
| 4 | 19 13 15·56 | 23 37 58·0 | ·3174230 | 2 22·7 | 310 45 1·8 | 1 50 9·0 | ·14 |
| 5 | 19 16 36·72 | 23 31 58·9 | ·3181055 | 2 22·1 | 311 22 39·0 | 1 50 18·1 | ·14 |
| 6 | 19 19 57·75 | 23 25 43·7 | ·3187846 | 2 21·5 | 312 0 17·7 | 1 50 26·5 | ·14 |
| 7 | 19 23 18·62 | 23 19 12·4 | ·3194604 | 2 20·9 | 312 37 58·0 | 1 50 34·0 | ·14 |
| 8 | 19 26 39·34 | 23 12 25·2 | ·3201328 | 2 20·3 | 313 15 39·8 | 1 50 40·8 | ·14 |
| 9 | 19 29 59·87 | 23 5 22·1 | ·3208018 | 2 19·7 | 313 53 23·1 | 1 50 46·7 | ·14 |
| 10 | 19 33 20·20 | 22 58 3·3 | ·3214677 | 2 19·1 | 314 31 7·7 | 1 50 51·9 | ·14 |
| 11 | 19 36 40·31 | 22 50 28·8 | ·3221303 | 2 18·5 | 315 8 53·6 | 1 50 56·3 | ·14 |
| 12 | 19 40 0·19 | 22 42 38·7 | ·3227899 | 2 17·9 | 315 46 40·9 | 1 50 59·9 | ·14 |
| 13 | 19 43 19·81 | 22 34 33·1 | ·3234466 | 2 17·3 | 316 24 29·4 | 1 51 2·7 | ·14 |
| 14 | 19 46 39·18 | 22 26 12·2 | ·3241002 | 2 16·7 | 317 2 19·1 | 1 51 4·6 | ·14 |
| 15 | 19 49 58·27 | 22 17 36·0 | ·3247510 | 2 16·0 | 317 40 10·0 | 1 51 5·8 | ·14 |
| 16 | 19 53 17·08 | 22 8 44·7 | ·3253989 | 2 15·4 | 318 18 2·1 | 1 51 6·2 | ·14 |
| 17 | 19 56 35·59 | 21 59 38·4 | ·3260441 | 2 14·8 | 318 55 55·3 | 1 51 5·8 | ·14 |
| 18 | 19 59 53·79 | 21 50 17·2 | ·3266869 | 2 14·2 | 319 33 49·7 | 1 51 4·5 | ·14 |
| 19 | 20 3 11·67 | 21 40 41·4 | ·3273272 | 2 13·5 | 320 11 45·1 | 1 51 2·4 | ·14 |
| 20 | 20 6 29·22 | 21 30 51·0 | ·3279654 | 2 12·9 | 320 49 41·5 | 1 50 59·6 | ·14 |
| 21 | 20 9 46·43 | 21 20 46·2 | ·3286013 | 2 12·2 | 321 27 38·8 | 1 50 55·9 | ·14 |
| 22 | 20 13 3·29 | 21 10 27·1 | ·3292351 | 2 11·6 | 322 5 36·9 | 1 50 51·4 | ·14 |
| 23 | 20 16 19·79 | 20 59 53·9 | ·3298667 | 2 10·9 | 322 43 35·8 | 1 50 46·1 | ·14 |
| 24 | 20 19 35·93 | 20 49 6·6 | ·3304961 | 2 10·2 | 323 21 35·4 | 1 50 40·0 | ·14 |
| 25 | 20 22 51·70 | 20 38 5·5 | ·3311233 | 2 9·5 | 323 59 35·8 | 1 50 33·0 | ·14 |
| 26 | 20 26 7·09 | 20 26 50·6 | ·3317484 | 2 8·8 | 324 37 36·7 | 1 50 25·3 | ·14 |
| 27 | 20 29 22·10 | 20 15 22·2 | ·3323715 | 2 8·1 | 325 15 38·3 | 1 50 16·7 | ·14 |
| 28 | 20 32 36·72 | 20 3 40·4 | ·3329925 | 2 7·4 | 325 53 40·4 | 1 50 7·3 | ·14 |
| 29 | 20 35 50·94 | 19 51 45·3 | ·3336115 | 2 6·7 | 326 31 43·2 | 1 49 57·2 | ·14 |
| 30 | 20 39 4·76 | 19 39 37·2 | ·3342283 | 2 6·0 | 327 9 46·4 | 1 49 46·2 | ·14 |
| 31 | 20 42 18·17 | 19 27 16·1 | ·3348430 | 2 5·3 | 327 47 50·1 | 1 49 34·4 | ·14 |
| | 20 45 31·18 | S. 19 14 42·3 | 0·3354555 | 2 4·6 | 328 25 54·2 | S. 1 49 21·8 | 0·14 |

# DECEMBER, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 3 31 ·71 | + 8 ·39 | 0 ·15 | S. 23 53 47 ·4 | +12 ·6 | 2 ·1 | 4 ·1 |
| 6 53 ·06 | 8 ·39 | 0 ·15 | 23 48 35 ·6 | 13 ·3 | 2 ·1 | 4 ·1 |
| 10 14 ·32 | 8 ·38 | 0 ·15 | 23 43 7 ·5 | 14 ·0 | 2 ·1 | 4 ·1 |
| 13 35 ·50 | 8 ·38 | 0 ·15 | 23 37 23 ·1 | 14 ·7 | 2 ·1 | 4 ·1 |
| 16 56 ·57 | 8 ·38 | 0 ·15 | 23 31 22 ·6 | 15 ·4 | 2 ·1 | 4 ·1 |
| 20 17 ·51 | 8 ·37 | 0 ·15 | 23 25 5 ·9 | 16 ·1 | 2 ·1 | 4 ·1 |
| 23 38 ·28 | 8 ·36 | 0 ·15 | 23 18 33 ·2 | 16 ·7 | 2 ·1 | 4 ·1 |
| 26 58 ·90 | 8 ·35 | 0 ·15 | 23 11 44 ·7 | 17 ·4 | 2 ·1 | 4 ·1 |
| 30 19 ·32 | 8 ·34 | 0 ·15 | 23 4 40 ·3 | 18 ·0 | 2 ·1 | 4 ·1 |
| 33 39 ·55 | 8 ·34 | 0 ·15 | 22 57 20 ·2 | 18 ·7 | 2 ·1 | 4 ·1 |
| 36 59 ·55 | 8 ·33 | 0 ·15 | 22 49 44 ·3 | 19 ·3 | 2 ·1 | 4 ·1 |
| 40 19 ·32 | 8 ·32 | 0 ·15 | 22 41 52 ·9 | 20 ·0 | 2 ·1 | 4 ·1 |
| 43 38 ·83 | 8 ·31 | 0 ·15 | 22 33 46 ·1 | 20 ·6 | 2 ·1 | 4 ·1 |
| 46 58 ·09 | 8 ·30 | 0 ·15 | 22 25 23 ·9 | 21 ·3 | 2 ·1 | 4 ·1 |
| 50 17 ·07 | 8 ·29 | 0 ·15 | 22 16 46 ·5 | 21 ·9 | 2 ·1 | 4 ·1 |
| 53 35 ·76 | 8 ·27 | 0 ·15 | 22 7 54 ·0 | 22 ·3 | 2 ·1 | 4 ·1 |
| 56 54 ·15 | 8 ·26 | 0 ·15 | 21 58 46 ·5 | 23 ·0 | 2 ·1 | 4 ·0 |
| 0 12 ·23 | 8 ·25 | 0 ·15 | 21 49 24 ·1 | 23 ·7 | 2 ·1 | 4 ·0 |
| 3 30 ·00 | 8 ·23 | 0 ·15 | 21 39 47 ·2 | 24 ·3 | 2 ·1 | 4 ·0 |
| 6 47 ·43 | 8 ·22 | 0 ·15 | 21 29 55 ·8 | 24 ·9 | 2 ·1 | 4 ·0 |
| 10 4 ·52 | 8 ·20 | 0 ·15 | 21 19 50 ·0 | 25 ·5 | 2 ·1 | 4 ·0 |
| 13 21 ·26 | 8 ·19 | 0 ·15 | 21 9 29 ·9 | 26 ·1 | 2 ·1 | 4 ·0 |
| 16 37 ·64 | 8 ·17 | 0 ·15 | 20 58 55 ·7 | 26 ·7 | 2 ·1 | 4 ·0 |
| 19 53 ·65 | 8 ·16 | 0 ·15 | 20 48 7 ·4 | 27 ·3 | 2 ·1 | 4 ·0 |
| 23 9 ·29 | 8 ·14 | 0 ·15 | 20 37 5 ·3 | 27 ·9 | 2 ·1 | 4 ·0 |
| 26 24 ·55 | 8 ·13 | 0 ·15 | 20 25 49 ·5 | 28 ·5 | 2 ·1 | 4 ·0 |
| 29 39 ·44 | 8 ·11 | 0 ·15 | 20 14 20 ·2 | 29 ·0 | 2 ·1 | 4 ·0 |
| 32 53 ·93 | 8 ·10 | 0 ·15 | 20 2 37 ·6 | 29 ·6 | 2 ·1 | 4 ·0 |
| 36 8 ·02 | 8 ·08 | 0 ·15 | 19 50 41 ·7 | 30 ·1 | 2 ·1 | 4 ·0 |
| 39 21 ·71 | 8 ·06 | 0 ·15 | 19 38 32 ·8 | 30 ·6 | 2 ·1 | 4 ·0 |
| 42 34 ·99 | 8 ·04 | 0 ·15 | 19 26 11 ·0 | 31 ·2 | 2 ·1 | 4 ·0 |
| 87 | + 8 ·03 | 0 ·15 | S. 19 13 36 ·5 | +31 ·7 | 2 ·1 | 4 ·0 |

## MEAN TIME.

| Date. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | Right Ascension. | Declination. | Log. of Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. V |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon* |
| 1839. | h m | ° ′ | | h m | ° ′ | ° ′ | |
| Jan. 1 | 6 28·9 | N.22 14 | 0·1931 | 11 44·6 | 98 9 | S.0 39 | 0·40 |
| 5 | 6 24·3 | 22 28 | 0·1943 | 11 24·3 | 99 5 | 0 32 | 0·40 |
| 9 | 6 20·0 | 22 42 | 0·1967 | 11 4·3 | 100 1 | 0 25 | 0·40 |
| 13 | 6 15·9 | 22 55 | 0·2003 | 10 44·6 | 100 57 | 0 18 | 0·40 |
| 17 | 6 12·2 | 23 8 | 0·2050 | 10 25·3 | 101 53 | 0 11 | 0·40 |
| 21 | 6 8·8 | 23 20 | 0·2108 | 10 6·3 | 102 49 | S.0 4 | 0·40 |
| 25 | 6 5·8 | 23 32 | 0·2176 | 9 47·6 | 103 45 | N.0 3 | 0·40 |
| 29 | 6 3·2 | 23 43 | 0·2251 | 9 29·3 | 104 41 | 0 10 | 0·40 |
| Feb. 2 | 6 1·1 | 23 53 | 0·2334 | 9 11·5 | 105 37 | 0 17 | 0·40 |
| 6 | 5 59·5 | 24 2 | 0·2422 | 8 54·2 | 106 33 | 0 24 | 0·40 |
| 10 | 5 58·5 | 24 11 | 0·2515 | 8 37·5 | 107 30 | 0 31 | 0·40 |
| 14 | 5 58·0 | 24 20 | 0·2612 | 8 21·3 | 108 26 | 0 38 | 0·40 |
| 18 | 5 58·0 | 24 28 | 0·2712 | 8 5·6 | 109 23 | 0 45 | 0·40 |
| 22 | 5 58·5 | 24 36 | 0·2813 | 7 50·5 | 110 20 | 0 52 | 0·40 |
| 26 | 5 59·6 | 24 43 | 0·2916 | 7 35·9 | 111 17 | 0 59 | 0·39 |
| March 2 | 6 1·2 | 24 50 | 0·3019 | 7 21·8 | 112 14 | 1 6 | 0·39 |
| 6 | 6 3·2 | 24 57 | 0·3122 | 7 8·1 | 113 11 | 1 13 | 0·39 |
| 10 | 6 5·6 | 25 3 | 0·3223 | 6 54·8 | 114 8 | 1 20 | 0·39 |
| 14 | 6 8·5 | 25 9 | 0·3323 | 6 41·9 | 115 6 | 1 27 | 0·39 |
| 18 | 6 11·7 | 25 14 | 0·3421 | 6 29·4 | 116 3 | 1 35 | 0·39 |
| 22 | 6 15·3 | 25 18 | 0·3517 | 6 17·3 | 117 1 | 1 42 | 0·39 |
| 26 | 6 19·2 | 25 21 | 0·3611 | 6 5·5 | 117 59 | 1 49 | 0·39 |
| 30 | 6 23·5 | 25 24 | 0·3703 | 5 54·0 | 118 57 | 1 56 | 0·39 |
| April 3 | 6 28·1 | 25 26 | 0·3793 | 5 42·8 | 119 55 | 2 3 | 0·39 |
| 7 | 6 32·9 | 25 27 | 0·3880 | 5 32·0 | 120 54 | 2 10 | 0·39 |
| 11 | 6 38·0 | 25 27 | 0·3964 | 5 21·4 | 121 52 | 2 17 | 0·39 |
| 15 | 6 43·3 | 25 26 | 0·4046 | 5 10·9 | 122 51 | 2 24 | 0·39 |
| 19 | 6 48·8 | 25 24 | 0·4125 | 5 0·7 | 123 50 | 2 30 | 0·39 |
| 23 | 6 54·6 | 25 20 | 0·4201 | 4 50·7 | 124 49 | 2 37 | 0·39 |
| 27 | 7 0·5 | 25 16 | 0·4274 | 4 40·9 | 125 48 | 2 44 | 0·39 |
| May 1 | 7 6·6 | 25 10 | 0·4345 | 4 31·2 | 126 47 | 2 51 | 0·39 |
| 5 | 7 12·9 | N.25 3 | 0·4413 | 4 21·7 | 127 46 | N.2 57 | 0·39 |

## MEAN TIME.

| ate. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | Right Ascension. | Declination. | Log. of Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. of Rad. Vect. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| 839. | h m | ° ′ | | h m | ° ′ | ° ′ | |
| 5 | 7 12·9 | N.25 3 | 0·4413 | 4 21·7 | 127 46 | N.2 57 | 0·3909 |
| 9 | 7 19·3 | 24 56 | 0·4478 | 4 12·4 | 128 46 | 3 4 | 0·3903 |
| 13 | 7 25·8 | 24 47 | 0·4540 | 4 3·2 | 129 46 | 3 11 | 0·3897 |
| 17 | 7 32·5 | 24 36 | 0·4599 | 3 54·1 | 130 46 | 3 18 | 0·3891 |
| 21 | 7 39·3 | 24 24 | 0·4655 | 3 45·1 | 131 46 | 3 24 | 0·3885 |
| 25 | 7 46·1 | 24 11 | 0·4709 | 3 36·2 | 132 47 | 3 31 | 0·3878 |
| 29 | 7 53·0 | 23 56 | 0·4760 | 3 27·4 | 133 47 | 3 38 | 0·3872 |
| e 2 | 8 0·0 | 23 40 | 0·4808 | 3 18·6 | 134 48 | 3 44 | 0·3866 |
| 6 | 8 7·1 | 23 23 | 0·4854 | 3 9·9 | 135 49 | 3 51 | 0·3860 |
| 10 | 8 14·2 | 23 4 | 0·4897 | 3 1·3 | 136 50 | 3 57 | 0·3853 |
| 14 | 8 21·4 | 22 44 | 0·4937 | 2 52·7 | 137 52 | 4 4 | 0·3847 |
| 18 | 8 28·7 | 22 23 | 0·4975 | 2 44·2 | 138 53 | 4 10 | 0·3840 |
| 22 | 8 36·0 | 22 0 | 0·5011 | 2 35·8 | 139 55 | 4 16 | 0·3833 |
| 26 | 8 43·3 | 21 36 | 0·5044 | 2 27·4 | 140 57 | 4 22 | 0·3826 |
| 30 | 8 50·6 | 21 11 | 0·5075 | 2 19·0 | 141 59 | 4 28 | 0·3820 |
| 4 | 8 58·0 | 20 44 | 0·5103 | 2 10·6 | 143 2 | 4 34 | 0·3813 |
| 8 | 9 5·4 | 20 16 | 0·5129 | 2 2·2 | 144 4 | 4 40 | 0·3806 |
| 12 | 9 12·8 | 19 47 | 0·5153 | 1 53·8 | 145 7 | 4 46 | 0·3799 |
| 16 | 9 20·2 | 19 17 | 0·5174 | 1 45·4 | 146 10 | 4 52 | 0·3792 |
| 20 | 9 27·6 | 18 46 | 0·5193 | 1 37·1 | 147 13 | 4 58 | 0·3785 |
| 24 | 9 35·0 | 18 14 | 0·5210 | 1 28·8 | 148 17 | 5 3 | 0·3778 |
| 28 | 9 42·5 | 17 40 | 0·5224 | 1 20·5 | 149 20 | 5 9 | 0·3771 |
| 1 | 9 49·9 | 17 5 | 0·5236 | 1 12·1 | 150 24 | 5 14 | 0·3764 |
| 5 | 9 57·3 | 16 30 | 0·5246 | 1 3·8 | 151 28 | 5 20 | 0·3757 |
| 9 | 10 4·7 | 15 54 | 0·5254 | 0 55·5 | 152 32 | 5 25 | 0·3750 |
| 13 | 10 12·2 | 15 16 | 0·5259 | 0 47·2 | 153 37 | 5 30 | 0·3742 |
| 17 | 10 19·6 | 14 38 | 0·5262 | 0 38·9 | 154 42 | 5 35 | 0·3735 |
| 21 | 10 27·1 | 13 59 | 0·5263 | 0 30·6 | 155 47 | 5 40 | 0·3728 |
| 25 | 10 34·5 | 13 20 | 0·5262 | 0 22·2 | 156 52 | 5 45 | 0·3721 |
| 29 | 10 41·9 | 12 40 | 0·5258 | 0 13·9 | 157 58 | 5 50 | 0·3713 |
| 2 | 10 49·3 | 11 59 | 0·5252 | 0 5·5 | 159 4 | 5 55 | 0·3706 |
| | 10 56·7 | N.11 17 | 0·5244 | * 23 55·0 | 160 10 | N.5 59 | 0·3698 |

## MEAN TIME.

| Date. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | Right Ascension. | Declination. | Log. of Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. Vec. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| 1839. | h m | ° ′ | | h m | ° ′ | ° ′ | |
| Sept. 6 | 10 56·7 | N.11 17 | 0·5244 | 23 55·0 | 160 10 | N.5 59 | 0·3[illegible] |
| 10 | 11 4·1 | 10 35 | 0·5234 | 23 46·6 | 161 16 | 6 4 | 0·3[illegible] |
| 14 | 11 11·4 | 9 53 | 0·5222 | 23 38·2 | 162 23 | 6 8 | 0·3[illegible] |
| 18 | 11 18·8 | 9 10 | 0·5208 | 23 29·8 | 163 30 | 6 12 | 0·3[illegible] |
| 22 | 11 26·1 | 8 27 | 0·5191 | 23 21·4 | 164 37 | 6 16 | 0·3[illegible] |
| 26 | 11 33·5 | 7 44 | 0·5172 | 23 13·0 | 165 44 | 6 20 | 0·3[illegible] |
| 30 | 11 40·8 | 7 1 | 0·5151 | 23 4·6 | 166 51 | 6 24 | 0·3[illegible] |
| Oct. 4 | 11 48·2 | 6 18 | 0·5128 | 22 56·2 | 167 59 | 6 27 | 0·3[illegible] |
| 8 | 11 55·5 | 5 34 | 0·5102 | 22 47·7 | 169 7 | 6 31 | 0·3[illegible] |
| 12 | 12 2·8 | 4 50 | 0·5074 | 22 39·3 | 170 15 | 6 34 | 0·3[illegible] |
| 16 | 12 10·1 | 4 6 | 0·5044 | 22 30·8 | 171 23 | 6 37 | 0·3[illegible] |
| 20 | 12 17·5 | 3 22 | 0·5011 | 22 22·4 | 172 32 | 6 40 | 0·3[illegible] |
| 24 | 12 24·8 | 2 39 | 0·4976 | 22 14·0 | 173 41 | 6 43 | 0·3[illegible] |
| 28 | 12 32·1 | 1 56 | 0·4939 | 22 5·6 | 174 50 | 6 46 | 0·3[illegible] |
| Nov. 1 | 12 39·4 | 1 14 | 0·4899 | 21 57·1 | 176 0 | 6 49 | 0·3[illegible] |
| 5 | 12 46·7 | N. 0 32 | 0·4857 | 21 48·7 | 177 10 | 6 51 | 0·3[illegible] |
| 9 | 12 54·0 | S. 0 9 | 0·4812 | 21 40·2 | 178 20 | 6 54 | 0·3[illegible] |
| 13 | 13 1·2 | 0 50 | 0·4765 | 21 31·7 | 179 30 | 6 56 | 0·3[illegible] |
| 17 | 13 8·5 | 1 30 | 0·4716 | 21 23·2 | 180 40 | 6 58 | 0·3[illegible] |
| 21 | 13 15·7 | 2 10 | 0·4664 | 21 14·7 | 181 52 | 7 0 | 0·3[illegible] |
| 25 | 13 23·0 | 2 49 | 0·4610 | 21 6·1 | 183 3 | 7 1 | 0·3[illegible] |
| 29 | 13 30·2 | 3 27 | 0·4553 | 20 57·6 | 184 14 | 7 3 | 0·3[illegible] |
| Dec. 3 | 13 37·4 | 4 4 | 0·4493 | 20 49·0 | 185 25 | 7 4 | 0·3[illegible] |
| 7 | 13 44·6 | 4 40 | 0·4431 | 20 40·4 | 186 37 | 7 5 | 0·3[illegible] |
| 11 | 13 51·7 | 5 15 | 0·4366 | 20 31·7 | 187 49 | 7 6 | 0·3[illegible] |
| 15 | 13 58·8 | 5 49 | 0·4298 | 20 23·1 | 189 1 | 7 7 | 0·3[illegible] |
| 19 | 14 5·9 | 6 21 | 0·4228 | 20 14·4 | 190 13 | 7 8 | 0·3[illegible] |
| 23 | 14 12·9 | 6 52 | 0·4155 | 20 5·7 | 191 25 | 7 8 | 0·3[illegible] |
| 27 | 14 19·9 | 7 22 | 0·4079 | 19 56·9 | 192 38 | 7 8 | |
| 31 | 14 26·8 | 7 51 | 0·4000 | 19 48·1 | 193 | | |
| 35 | 14 33·7 | S. 8 18 | 0·3919 | 19 39·2 | | | |

## EPHEMERIS OF VESTA FOR THE OPPOSITION.

At Transit over the Meridian of Greenwich.

| Date. | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Hor. Par. |
|---|---|---|---|---|---|
| 1838. | h m s | s | ° ′ ″ | ″ | ″ |
| November 29 | 6 59 30 ·96 | — 1 ·43 | N. 20 22 5 ·1 | + 6 ·7 | 5 ·1 |
| 30 | 6 58 55 ·75 | 1 ·50 | 20 24 48 ·7 | 6 ·9 | 5 ·1 |
| December 1 | 6 58 18 ·78 | 1 ·58 | 20 27 36 ·7 | 7 ·1 | 5 ·1 |
| 2 | 6 57 40 ·06 | 1 ·65 | 20 30 28 ·9 | 7 ·3 | 5 ·1 |
| 3 | 6 56 59 ·60 | 1 ·72 | 20 33 25 ·2 | 7 ·4 | 5 ·2 |
| 4 | 6 56 17 ·43 | 1 ·79 | 20 36 25 ·5 | 7 ·6 | 5 ·2 |
| 5 | 6 55 33 ·59 | 1 ·86 | 20 39 29 ·5 | 7 ·7 | 5 ·2 |
| 6 | 6 54 48 ·09 | 1 ·93 | 20 42 37 ·3 | 7 ·9 | 5 ·2 |
| 7 | 6 54 0 ·98 | 2 ·00 | 20 45 48 ·6 | 8 ·0 | 5 ·3 |
| 8 | 6 53 12 ·29 | 2 ·06 | 20 49 3 ·3 | 8 ·2 | 5 ·3 |
| 9 | 6 52 22 ·07 | 2 ·12 | 20 52 21 ·3 | 8 ·3 | 5 ·3 |
| 10 | 6 51 30 ·35 | 2 ·18 | 20 55 42 ·2 | 8 ·4 | 5 ·3 |
| 11 | 6 50 37 ·21 | 2 ·24 | 20 59 6 ·1 | 8 ·5 | 5 ·3 |
| 12 | 6 49 42 ·67 | 2 ·30 | 21 2 32 ·6 | 8 ·7 | 5 ·3 |
| 13 | 6 48 46 ·80 | 2 ·35 | 21 6 1 ·5 | 8 ·8 | 5 ·4 |
| 14 | 6 47 49 ·67 | 2 ·41 | 21 9 32 ·7 | 8 ·8 | 5 ·4 |
| 15 | 6 46 51 ·33 | 2 ·46 | 21 13 6 ·1 | 8 ·9 | 5 ·4 |
| 16 | 6 45 51 ·83 | 2 ·50 | 21 16 41 ·4 | 9 ·0 | 5 ·4 |
| 17 | 6 44 51 ·26 | 2 ·55 | 21 20 18 ·4 | 9 ·1 | 5 ·4 |
| 18 | 6 43 49 ·66 | 2 ·59 | 21 23 56 ·9 | 9 ·1 | 5 ·4 |
| 19 | 6 42 47 ·14 | 2 ·62 | 21 27 36 ·7 | 9 ·2 | 5 ·4 |
| 20 | 6 41 43 ·75 | 2 ·66 | 21 31 17 ·4 | 9 ·2 | 5 ·5 |
| 21 | 6 40 39 ·58 | 2 ·69 | 21 34 59 ·1 | 9 ·2 | 5 ·5 |
| 22 | 6 39 34 ·71 | 2 ·72 | 21 38 41 ·3 | 9 ·3 | 5 ·5 |
| 23 | 6 38 29 ·20 | 2 ·74 | 21 42 23 ·9 | 9 ·3 | 5 ·5 |
| 24 | 6 37 23 ·15 | 2 ·76 | 21 46 6 ·8 | 9 ·3 | 5 ·5 |
| 25 | 6 36 16 ·64 | 2 ·78 | 21 49 49 ·6 | 9 ·3 | 5 ·5 |
| 26 | 6 35 9 ·75 | 2 ·79 | 21 53 32 ·2 | 9 ·3 | 5 ·5 |
| 27 | 6 34 2 ·56 | 2 ·80 | 21 57 14 ·6 | 9 ·3 | 5 ·5 |
| 28 | 6 32 55 ·16 | 2 ·81 | 22 0 56 ·3 | 9 ·2 | 5 ·5 |
| 29 | 6 31 47 ·63 | — 2 ·81 | N. 22 4 37 ·2 | + 9 ·2 | 5 ·5 |

## EPHEMERIS OF VESTA FOR THE OPPOSITION.

### At Transit over the Meridian of Greenwich.

| Date. | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Hor. Par. |
|---|---|---|---|---|---|
| 1838. | h m s | s | ° ′ ″ | ″ | ″ |
| December 29 | 6 31 47 ·63 | — 2 ·81 | N.22 4 37 ·2 | + 9 ·2 | 5 |
| 30 | 6 30 40 ·05 | 2 ·82 | 22 8 17 ·3 | 9 ·2 | 5 |
| 31 | 6 29 32 ·49 | 2 ·81 | 22 11 56 ·4 | 9 ·1 | 5 |
| 1839. | | | | | |
| January 1 | 6 28 25 ·06 | 2 ·81 | 22 15 34 ·3 | 9 ·1 | 5 |
| 2 | 6 27 17 ·81 | 2 ·80 | 22 19 10 ·8 | 9 ·0 | 5 |
| 3 | 6 26 10 ·84 | 2 ·78 | 22 22 45 ·9 | 8 ·9 | 5 |
| 4 | 6 25 4 ·22 | 2 ·77 | 22 26 19 ·4 | 8 ·9 | 5 |
| 5 | 6 23 58 ·04 | 2 ·75 | 22 29 51 ·1 | 8 ·8 | 5 |
| 6 | 6 22 52 ·37 | 2 ·72 | 22 33 21 ·0 | 8 ·7 | 5 |
| 7 | 6 21 47 ·32 | 2 ·70 | 22 36 48 ·9 | 8 ·6 | 5 |
| 8 | 6 20 42 ·95 | 2 ·67 | 22 40 14 ·8 | 8 ·5 | 5 |
| 9 | 6 19 39 ·35 | 2 ·63 | 22 43 38 ·7 | 8 ·4 | 5 |
| 10 | 6 18 36 ·59 | 2 ·60 | 22 47 0 ·3 | 8 ·4 | 5 |
| 11 | 6 17 34 ·76 | 2 ·56 | 22 50 19 ·7 | 8 ·3 | 5 |
| 12 | 6 16 33 ·94 | 2 ·51 | 22 53 36 ·8 | 8 ·2 | 5 |
| 13 | 6 15 34 ·20 | 2 ·47 | 22 56 51 ·6 | 8 ·1 | 5 |
| 14 | 6 14 35 ·61 | 2 ·42 | 23 0 3 ·9 | 8 ·0 | 5 |
| 15 | 6 13 38 ·22 | 2 ·36 | 23 3 14 ·0 | 7 ·9 | 5 |
| 16 | 6 12 42 ·12 | 2 ·31 | 23 6 21 ·6 | 7 ·8 | 5 |
| 17 | 6 11 47 ·37 | 2 ·25 | 23 9 26 ·7 | 7 ·7 | 5 |
| 18 | 6 10 54 ·02 | 2 ·19 | 23 12 29 ·5 | 7 ·6 | 5 |
| 19 | 6 10 2 ·15 | 2 ·13 | 23 15 29 ·8 | 7 ·5 | 5 |
| 20 | 6 9 11 ·79 | 2 ·07 | 23 18 27 ·7 | 7 ·4 | 5 |
| 21 | 6 8 23 ·01 | 2 ·00 | 23 21 23 ·1 | 7 ·3 | 5 |
| 22 | 6 7 35 ·84 | 1 ·93 | 23 24 16 ·0 | 7 ·2 | 5 |
| 23 | 6 6 50 ·33 | 1 ·86 | 23 27 6 ·5 | 7 ·1 | 5 |
| 24 | 6 6 6 ·53 | 1 ·79 | 23 29 54 ·8 | 7 ·0 | 5 |
| 25 | 6 5 24 ·47 | 1 ·72 | 23 32 40 ·7 | 6 ·9 | 5 |
| 26 | 6 4 44 ·17 | 1 ·64 | 23 35 24 ·4 | 6 ·8 | 5 |
| 27 | 6 4 5 ·65 | 1 ·57 | 23 38 5 ·8 | 6 ·7 | 5 |
| 28 | 6 3 28 ·95 | — 1 ·49 | N.23 40 45 ·1 | | |

## MEAN TIME.

| | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | Right Ascension. | Declination. | Log. of Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. of Rad. Vect. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| | h m | ° ′ | | h m | ° ′ | ° ′ | |
| 1 | 19 45 ·5 | S. 13 38 | 0 ·5687 | 1 3 ·6 | 301 17 | N. 10 1 | 0 ·4439 |
| 5 | 19 52 ·2 | 13 27 | 0 ·5691 | 0 54 ·6 | 302 6 | 9 54 | 0 ·4423 |
| 9 | 19 58 ·9 | 13 15 | 0 ·5693 | 0 45 ·6 | 302 55 | 9 46 | 0 ·4407 |
| 3 | 20 5 ·7 | 13 2 | 0 ·5692 | 0 36 ·6 | 303 44 | 9 39 | 0 ·4391 |
| 7 | 20 12 ·5 | 12 47 | 0 ·5688 | 0 27 ·6 | 304 34 | 9 31 | 0 ·4374 |
| 1 | 20 19 ·3 | 12 31 | 0 ·5681 | 0 18 ·6 | 305 24 | 9 23 | 0 ·4358 |
| 5 | 20 26 ·2 | 12 13 | 0 ·5672 | 0 9 ·7 | 306 14 | 9 15 | 0 ·4341 |
| 9 | 20 33 ·0 | 11 54 | 0 ·5660 | 0 0 ·8 | 307 5 | 9 7 | 0 ·4324 |
| 2 | 20 39 ·9 | 11 35 | 0 ·5646 | *23 49 ·7 | 307 56 | 8 59 | 0 ·4307 |
| 6 | 20 46 ·8 | 11 14 | 0 ·5629 | 23 40 ·8 | 308 47 | 8 50 | 0 ·4290 |
| 0 | 20 53 ·7 | 10 52 | 0 ·5609 | 23 31 ·9 | 309 39 | 8 41 | 0 ·4272 |
| 4 | 21 0 ·6 | 10 29 | 0 ·5587 | 23 23 ·0 | 310 31 | 8 32 | 0 ·4254 |
| 8 | 21 7 ·4 | 10 5 | 0 ·5562 | 23 14 ·1 | 311 24 | 8 23 | 0 ·4236 |
| 2 | 21 14 ·3 | 9 40 | 0 ·5535 | 23 5 ·2 | 312 17 | 8 14 | 0 ·4218 |
| 6 | 21 21 ·1 | 9 14 | 0 ·5504 | 22 56 ·3 | 313 11 | 8 4 | 0 ·4200 |
| 2 | 21 27 ·9 | 8 47 | 0 ·5471 | 22 47 ·4 | 314 5 | 7 55 | 0 ·4182 |
| 6 | 21 34 ·7 | 8 19 | 0 ·5436 | 22 38 ·5 | 314 59 | 7 45 | 0 ·4164 |
| 0 | 21 41 ·5 | 7 50 | 0 ·5398 | 22 29 ·5 | 315 54 | 7 35 | 0 ·4146 |
| 4 | 21 48 ·3 | 7 21 | 0 ·5357 | 22 20 ·5 | 316 49 | 7 24 | 0 ·4127 |
| 8 | 21 55 ·1 | 6 51 | 0 ·5313 | 22 11 ·5 | 317 44 | 7 14 | 0 ·4109 |
| 2 | 22 1 ·8 | 6 21 | 0 ·5267 | 22 2 ·5 | 318 40 | 7 3 | 0 ·4090 |
| 6 | 22 8 ·5 | 5 50 | 0 ·5218 | 21 53 ·5 | 319 37 | 6 52 | 0 ·4071 |
| 0 | 22 15 ·2 | 5 19 | 0 ·5167 | 21 44 ·5 | 320 34 | 6 41 | 0 ·4052 |
| 3 | 22 21 ·9 | 4 47 | 0 ·5113 | 21 35 ·4 | 321 31 | 6 30 | 0 ·4033 |
| 7 | 22 28 ·6 | 4 15 | 0 ·5057 | 21 26 ·3 | 322 29 | 6 18 | 0 ·4013 |
| 1 | 22 35 ·2 | 3 43 | 0 ·4998 | 21 17 ·1 | 323 27 | 6 6 | 0 ·3994 |
| 5 | 22 41 ·8 | 3 10 | 0 ·4936 | 21 7 ·9 | 324 26 | 5 54 | 0 ·3974 |
| 9 | 22 48 ·4 | 2 37 | 0 ·4871 | 20 58 ·7 | 325 25 | 5 42 | 0 ·3955 |
| | 54 ·9 | 2 4 | 0 ·4804 | 20 49 ·5 | 326 25 | 5 29 | 0 ·3935 |
| | 1 ·4 | 1 31 | 0 ·4734 | 20 40 ·2 | 327 25 | 5 17 | 0 ·3916 |
| | | 0 59 | 0 ·4662 | 20 30 ·9 | 328 26 | 5 4 | 0 ·3896 |
| | | 7 | 0 ·4587 | 20 21 ·5 | 329 27 | N. 4 51 | 0 ·3876 |

## MEAN TIME.

| Date. | Geocentric. Right Ascension. Noon. | Declination. Noon. | Log. of Dist. from the Earth. Noon. | Meridian Passage. | Heliocentric. Longitude. Noon. | Latitude. Noon. |
|---|---|---|---|---|---|---|
| 1839. | h m | ° ′ | | h m | ° ′ | ° ′ |
| May 5 | 23 14·2 | S.0 27 | 0·4587 | 20 21·5 | 329 27 | N.4 51 |
| 9 | 23 20·6 | N.0 5 | 0·4508 | 20 12·1 | 330 28 | 4 38 |
| 13 | 23 26·9 | 0 37 | 0·4427 | 20 2·7 | 331 30 | 4 25 |
| 17 | 23 33·2 | 1 8 | 0·4343 | 19 53·2 | 332 33 | 4 11 |
| 21 | 23 39·4 | 1 38 | 0·4256 | 19 43·7 | 333 37 | 3 57 |
| 25 | 23 45·6 | 2 8 | 0·4167 | 19 34·1 | 334 41 | 3 43 |
| 29 | 23 51·7 | 2 37 | 0·4075 | 19 24·5 | 335 45 | 3 29 |
| June 2 | 23 57·8 | 3 5 | 0·3980 | 19 14·8 | 336 50 | 3 14 |
| 6 | 0 3·8 | 3 32 | 0·3882 | 19 5·0 | 337 56 | 2 59 |
| 10 | 0 9·8 | 3 59 | 0·3782 | 18 55·2 | 339 2 | 2 44 |
| 14 | 0 15·7 | 4 24 | 0·3679 | 18 45·3 | 340 9 | 2 29 |
| 18 | 0 21·4 | 4 48 | 0·3572 | 18 35·3 | 341 16 | 2 13 |
| 22 | 0 27·1 | 5 10 | 0·3462 | 18 25·2 | 342 24 | 1 58 |
| 26 | 0 32·7 | 5 30 | 0·3350 | 18 15·0 | 343 33 | 1 42 |
| 30 | 0 38·2 | 5 48 | 0·3235 | 18 4·7 | 344 42 | 1 26 |
| July 4 | 0 43·5 | 6 5 | 0·3117 | 17 54·2 | 345 52 | 1 10 |
| 8 | 0 48·7 | 6 20 | 0·2996 | 17 43·6 | 347 2 | 0 54 |
| 12 | 0 53·7 | 6 33 | 0·2873 | 17 32·9 | 348 13 | 0 38 |
| 16 | 0 58·6 | 6 43 | 0·2747 | 17 22·0 | 349 25 | 0 21 |
| 20 | 1 3·3 | 6 51 | 0·2619 | 17 11·0 | 350 37 | N.0 4 |
| 24 | 1 7·8 | 6 56 | 0·2489 | 16 59·7 | 351 50 | S.0 13 |
| 28 | 1 12·1 | 6 58 | 0·2356 | 16 48·2 | 353 4 | 0 30 |
| Aug. 1 | 1 16·1 | 6 57 | 0·2222 | 16 36·4 | 354 18 | 0 47 |
| 5 | 1 19·9 | 6 52 | 0·2086 | 16 24·3 | 355 33 | 1 4 |
| 9 | 1 23·4 | 6 44 | 0·1949 | 16 11·9 | 356 49 | 1 21 |
| 13 | 1 26·5 | 6 32 | 0·1811 | 15 59·3 | 358 5 | 1 39 |
| 17 | 1 29·3 | 6 16 | 0·1673 | 15 46·3 | 359 22 | 1 56 |
| 21 | 1 31·7 | 5 57 | 0·1536 | 15 33·0 | 0 40 | 2 14 |
| 25 | 1 33·8 | 5 33 | 0·1400 | 15 19·3 | 1 59 | |
| 29 | 1 35·5 | 5 5 | 0·1267 | 15 5·2 | 3 17 | |
| Sept. 2 | 1 36·8 | 4 33 | 0·1138 | 14 50·7 | 4 37 | |
| 6 | 1 37·6 | N.3 56 | 0·1013 | 14 35·7 | 5 | |

## MEAN TIME.

| Date. | Geocentric. Right Ascension. Noon. | Declination. Noon. | Log. of Dist. from the Earth. Noon. | Meridian Passage. | Heliocentric. Longitude. Noon. | Latitude. Noon. | Log. of Rad. Vect. Noon. |
|---|---|---|---|---|---|---|---|
| 839. | h m | ° ′ | | h m | ° ′ | ° ′ | |
| 6 | 1 37·6 | N.3 56 | 0·1013 | 14 35·7 | 5 57 | S. 3 26 | 0·3277 |
| 10 | 1 38·0 | 3 16 | 0·0893 | 14 20·3 | 7 18 | 3 44 | 0·3260 |
| 14 | 1 37·9 | 2 32 | 0·0780 | 14 4·4 | 8 40 | 4 2 | 0·3243 |
| 18 | 1 37·4 | 1 45 | 0·0676 | 13 48·1 | 10 3 | 4 20 | 0·3227 |
| 22 | 1 36·4 | 0 54 | 0·0582 | 13 31·3 | 11 26 | 4 38 | 0·3211 |
| 26 | 1 35·0 | N.0 1 | 0·0500 | 13 14·1 | 12 50 | 4 56 | 0·3196 |
| 30 | 1 33·2 | S.0 54 | 0·0430 | 12 56·6 | 14 14 | 5 14 | 0·3181 |
| 4 | 1 31·1 | 1 50 | 0·0374 | 12 38·8 | 15 39 | 5 32 | 0·3166 |
| 8 | 1 28·8 | 2 45 | 0·0333 | 12 20·7 | 17 5 | 5 50 | 0·3152 |
| 12 | 1 26·3 | 3 39 | 0·0308 | 12 2·5 | 18 32 | 6 8 | 0·3138 |
| 16 | 1 23·8 | 4 31 | 0·0299 | 11 44·2 | 19 59 | 6 25 | 0·3125 |
| 20 | 1 21·2 | 5 20 | 0·0306 | 11 25·9 | 21 27 | 6 43 | 0·3112 |
| 24 | 1 18·7 | 6 5 | 0·0328 | 11 7·7 | 22 55 | 7 0 | 0·3100 |
| 28 | 1 16·3 | 6 45 | 0·0364 | 10 49·6 | 24 24 | 7 17 | 0·3088 |
| 1 | 1 14·2 | 7 21 | 0·0413 | 10 31·8 | 25 53 | 7 34 | 0·3077 |
| 5 | 1 12·4 | 7 51 | 0·0475 | 10 14·4 | 27 23 | 7 51 | 0·3066 |
| 9 | 1 11·0 | 8 14 | 0·0549 | 9 57·3 | 28 54 | 8 7 | 0·3056 |
| 13 | 1 10·0 | 8 31 | 0·0632 | 9 40·6 | 30 25 | 8 23 | 0·3046 |
| 17 | 1 9·4 | 8 42 | 0·0723 | 9 24·4 | 31 57 | 8 39 | 0·3037 |
| 21 | 1 9·3 | 8 47 | 0·0821 | 9 8·6 | 33 29 | 8 55 | 0·3028 |
| 25 | 1 9·6 | 8 47 | 0·0924 | 8 53·2 | 35 2 | 9 10 | 0·3020 |
| 29 | 1 10·4 | 8 42 | 0·1031 | 8 38·3 | 36 35 | 9 25 | 0·3013 |
| 3 | 1 11·7 | 8 32 | 0·1142 | 8 23·9 | 38 8 | 9 39 | 0·3006 |
| 7 | 1 13·5 | 8 18 | 0·1255 | 8 10·0 | 39 42 | 9 53 | 0·3000 |
| 11 | 1 15·8 | 7 59 | 0·1369 | 7 56·6 | 41 16 | 10 7 | 0·2995 |
| 15 | 1 18·5 | 7 36 | 0·1484 | 7 43·6 | 42 51 | 10 20 | 0·2990 |
| 19 | 1 21·6 | 7 10 | 0·1599 | 7 31·0 | 44 26 | 10 33 | 0·2986 |
| 23 | 1 25·1 | 6 41 | 0·1714 | 7 18·8 | 46 1 | 10 45 | 0·2982 |
| 27 | 1 29·0 | 6 8 | 0·1828 | 7 6·9 | 47 37 | 10 57 | 0·2979 |
| 31 | 1 [illegible] | | [illegible] | 6 55·4 | 49 13 | 11 9 | 0·2977 |
| 35 | | | | 6 44·2 | 50 49 | S.11 20 | 0·2975 |

## EPHEMERIS OF JUNO FOR THE OPPOSITION.

### At Transit over the Meridian of Greenwich.

| Date. | | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | H P |
|---|---|---|---|---|---|---|
| 1839. | | h m s | s | ° ′ ″ | ″ | ″ |
| September | 12 | 1 37 58 ·15 | — 0 ·10 | N. 2 48 13 ·6 | — 27 ·9 | 7 |
| | 13 | 1 37 54 ·84 | 0 ·17 | 2 36 57 ·2 | 28 ·5 | 7 |
| | 14 | 1 37 49 ·85 | 0 ·24 | 2 25 27 ·8 | 29 ·0 | 7 |
| | 15 | 1 37 43 ·22 | 0 ·31 | 2 13 45 ·6 | 29 ·5 | 7 |
| | 16 | 1 37 34 ·95 | 0 ·38 | 2 1 51 ·2 | 30 ·0 | 7 |
| | 17 | 1 37 25 ·06 | 0 ·45 | 1 49 45 ·1 | 30 ·5 | 7 |
| | 18 | 1 37 13 ·56 | 0 ·51 | 1 37 27 ·5 | 31 ·0 | 7 |
| | 19 | 1 37 0 ·48 | 0 ·58 | 1 24 59 ·1 | 31 ·4 | 7 |
| | 20 | 1 36 45 ·84 | 0 ·64 | 1 12 20 ·4 | 31 ·8 | 7 |
| | 21 | 1 36 29 ·66 | 0 ·71 | 0 59 31 ·9 | 32 ·2 | 7 |
| | 22 | 1 36 11 ·96 | 0 ·77 | 0 46 34 ·2 | 32 ·6 | 7 |
| | 23 | 1 35 52 ·79 | 0 ·83 | 0 33 28 ·0 | 32 ·9 | 7 |
| | 24 | 1 35 32 ·15 | 0 ·89 | 0 20 13 ·8 | 33 ·2 | 7 |
| | 25 | 1 35 10 ·11 | 0 ·95 | N. 0 6 52 ·3 | 33 ·5 | 7 |
| | 26 | 1 34 46 ·67 | 1 ·00 | S. 0 6 35 ·7 | 33 ·8 | 7 |
| | 27 | 1 34 21 ·89 | 1 ·06 | 0 20 9 ·6 | 34 ·0 | 7 |
| | 28 | 1 33 55 ·81 | 1 ·11 | 0 33 48 ·5 | 34 ·2 | 7 |
| | 29 | 1 33 28 ·47 | 1 ·16 | 0 47 31 ·8 | 34 ·4 | 7 |
| | 30 | 1 32 59 ·92 | 1 ·21 | 1 1 18 ·5 | 34 ·5 | 7 |
| October | 1 | 1 32 30 ·21 | 1 ·26 | 1 15 7 ·8 | 34 ·6 | 7 |
| | 2 | 1 31 59 ·39 | 1 ·31 | 1 28 59 ·0 | 34 ·7 | 7 |
| | 3 | 1 31 27 ·51 | 1 ·35 | 1 42 51 ·0 | 34 ·7 | 7 |
| | 4 | 1 30 54 ·66 | 1 ·39 | 1 56 43 ·0 | 34 ·6 | 7 |
| | 5 | 1 30 20 ·88 | 1 ·42 | 2 10 34 ·0 | 34 ·6 | 7 |
| | 6 | 1 29 46 ·27 | 1 ·46 | 2 24 23 ·0 | 34 ·5 | 7 |
| | 7 | 1 29 10 ·89 | 1 ·49 | 2 38 9 ·1 | 34 ·3 | 7 |
| | 8 | 1 28 34 ·81 | 1 ·52 | 2 51 51 ·3 | 34 ·2 | 8 |
| | 9 | 1 27 58 ·11 | 1 ·54 | 3 5 28 ·7 | 33 ·9 | 8 |
| | 10 | 1 27 20 ·86 | 1 ·56 | 3 19 0 ·3 | 33 ·7 | 8 |
| | 11 | 1 26 43 ·15 | 1 ·58 | 3 32 25 ·1 | 33 ·4 | 8 |
| 8 | 12 | 1 26 5 ·06 | — 1 ·59 | S. 3 45 42 ·2 | — 33 ·0 | 8 |

## EPHEMERIS OF JUNO FOR THE OPPOSITION.

### At Transit over the Meridian of Greenwich.

| Date. | | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Hor. Par. |
|---|---|---|---|---|---|---|
| 1839. | | h m s | s | ° ′ ″ | ″ | ″ |
| tober | 12 | 1 26 5·06 | — 1·59 | S. 3 45 42·2 | — 33·0 | 8·0 |
| | 13 | 1 25 26·66 | 1·60 | 3 58 50·7 | 32·7 | 8·0 |
| | 14 | 1 24 48·04 | 1·61 | 4 11 49·6 | 32·2 | 8·0 |
| | 15 | 1 24 9·28 | 1·62 | 4 24 38·1 | 31·8 | 8·0 |
| | 16 | 1 23 30·46 | 1·62 | 4 37 15·4 | 31·3 | 8·0 |
| | 17 | 1 22 51·64 | 1·62 | 4 49 40·5 | 30·8 | 8·0 |
| | 18 | 1 22 12·92 | 1·61 | 5 1 52·8 | 30·2 | 8·0 |
| | 19 | 1 21 34·37 | 1·60 | 5 13 51·5 | 29·6 | 8·0 |
| | 20 | 1 20 56·07 | 1·59 | 5 25 35·7 | 29·0 | 8·0 |
| | 21 | 1 20 18·09 | 1·57 | 5 37 4·8 | 28·4 | 8·0 |
| | 22 | 1 19 40·52 | 1·56 | 5 48 18·1 | 27·7 | 8·0 |
| | 23 | 1 19 3·41 | 1·53 | 5 59 15·1 | 27·0 | 8·0 |
| | 24 | 1 18 26·86 | 1·51 | 6 9 54·9 | 26·3 | 7·9 |
| | 25 | 1 17 50·93 | 1·48 | 6 20 16·9 | 25·5 | 7·9 |
| | 26 | 1 17 15·68 | 1·45 | 6 30 20·7 | 24·8 | 7·9 |
| | 27 | 1 16 41·19 | 1·42 | 6 40 5·5 | 24·0 | 7·9 |
| | 28 | 1 16 7·53 | 1·38 | 6 49 31·1 | 23·2 | 7·9 |
| | 29 | 1 15 34·77 | 1·34 | 6 58 36·8 | 22·3 | 7·9 |
| | 30 | 1 15 2·97 | 1·30 | 7 7 22·3 | 21·5 | 7·8 |
| | 31 | 1 14 32·18 | 1·26 | 7 15 47·3 | 20·6 | 7·8 |
| vember | 1 | 1 14 2·48 | 1·21 | 7 23 51·4 | 19·7 | 7·8 |
| | 2 | 1 13 33·95 | 1·16 | 7 31 34·0 | 18·8 | 7·8 |
| | 3 | 1 13 6·62 | 1·11 | 7 38 55·1 | 17·9 | 7·7 |
| | 4 | 1 12 40·57 | 1·06 | 7 45 54·1 | 17·0 | 7·7 |
| | 5 | 1 12 15·85 | 1·00 | 7 52 31·1 | 16·1 | 7·7 |
| | 6 | 1 11 52·52 | 0·94 | 7 58 45·8 | 15·1 | 7·6 |
| | 7 | 1 11 30·62 | 0·88 | 8 4 38·1 | 14·2 | 7·6 |
| | 8 | 1 11 10·21 | 0·82 | 8 10 7·7 | 13·3 | 7·6 |
| | 9 | 1 10 51·32 | 0·75 | 8 15 14·8 | 12·3 | 7·6 |
| | 10 | 1 10 34·00 | 0·69 | 8 19 59·2 | 11·4 | 7·5 |
| | 11 | 1 10 18·29 | — 0·62 | S. 8 24 21·1 | — 10·4 | 7·5 |

## MEAN TIME.

| Date. | Geocentric. Right Ascension. Noon. | Declination. Noon. | Log. of Dist. from the Earth. Noon. | Meridian Passage. | Heliocentric. Longitude. Noon. | Latitude. Noon. |
|---|---|---|---|---|---|---|
| 1839. | h m | ° ′ | | h m | ° ′ | ° ′ |
| Jan. 1 | 12 50·8 | S. 8 22 | 0·3214 | 18 6·9 | 169 1 | S. 2 31 |
| 5 | 12 55·7 | 8 6 | 0·3119 | 17 56·0 | 170 3 | 1 48 |
| 9 | 13 0·3 | 7 46 | 0·3021 | 17 44·8 | 171 5 | 1 5 |
| 13 | 13 4·6 | 7 22 | 0·2921 | 17 33·3 | 172 6 | S. 0 23 |
| 17 | 13 8·7 | 6 53 | 0·2820 | 17 21·6 | 173 7 | N. 0 19 |
| 21 | 13 12·4 | 6 20 | 0·2718 | 17 9·5 | 174 8 | 1 1 |
| 25 | 13 15·8 | 5 42 | 0·2615 | 16 57·1 | 175 8 | 1 43 |
| 29 | 13 18·8 | 4 59 | 0·2513 | 16 44·3 | 176 8 | 2 24 |
| Feb. 2 | 13 21·4 | 4 11 | 0·2411 | 16 31·1 | 177 7 | 3 5 |
| 6 | 13 23·6 | 3 18 | 0·2311 | 16 17·5 | 178 6 | 3 46 |
| 10 | 13 25·4 | 2 19 | 0·2214 | 16 3·5 | 179 5 | 4 26 |
| 14 | 13 26·8 | 1 15 | 0·2121 | 15 49·0 | 180 4 | 5 6 |
| 18 | 13 27·7 | S. 0 7 | 0·2033 | 15 34·1 | 181 2 | 5 45 |
| 22 | 13 28·1 | N. 1 6 | 0·1951 | 15 18·8 | 182 0 | 6 24 |
| 26 | 13 28·1 | 2 24 | 0·1876 | 15 3·0 | 182 57 | 7 2 |
| March 2 | 13 27·6 | 3 46 | 0·1810 | 14 46·8 | 183 54 | 7 40 |
| 6 | 13 26·7 | 5 11 | 0·1754 | 14 30·1 | 184 51 | 8 18 |
| 10 | 13 25·4 | 6 38 | 0·1709 | 14 13·0 | 185 48 | 8 55 |
| 14 | 13 23·6 | 8 7 | 0·1677 | 13 55·4 | 186 44 | 9 32 |
| 18 | 13 21·5 | 9 35 | 0·1658 | 13 37·5 | 187 40 | 10 9 |
| 22 | 13 19·1 | 11 3 | 0·1652 | 13 19·3 | 188 36 | 10 45 |
| 26 | 13 16·5 | 12 29 | 0·1660 | 13 0·9 | 189 32 | 11 21 |
| 30 | 13 13·7 | 13 51 | 0·1683 | 12 42·4 | 190 28 | 11 56 |
| April 3 | 13 10·8 | 15 9 | 0·1720 | 12 23·8 | 191 24 | 12 31 |
| 7 | 13 7·9 | 16 22 | 0·1769 | 12 5·2 | 192 19 | 13 5 |
| 11 | 13 5·0 | 17 29 | 0·1830 | 11 46·6 | 193 14 | 13 39 |
| 15 | 13 2·1 | 18 29 | 0·1902 | 11 28·1 | 194 9 | 14 12 |
| 19 | 12 59·3 | 19 23 | 0·1984 | 11 9·7 | 195 4 | 14 45 |
| 23 | 12 56·8 | 20 10 | 0·2074 | 10 51·4 | 195 58 | 15 17 |
| 27 | 12 54·5 | 20 50 | 0·2171 | 10 33·4 | 196 52 | [illegible] |
| May 1 | 12 52·6 | 21 23 | 0·2275 | 10 15·[illegible] | | |
| 5 | 12 51·0 | N. 21 50 | 0·2384 | 9 | | |

## MEAN TIME.

| | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | Right Ascension. | Declination. | Log. of Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. of Rad. Vect. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| | h m | ° ′ | | h m | ° ′ | ° ′ | |
| 5 | 12 51·0 | N.21 50 | 0·2384 | 9 58·6 | 198 40 | N.16 51 | 0·4023 |
| 9 | 12 49·8 | 22 11 | 0·2496 | 9 41·7 | 199 34 | 17 21 | 0·4041 |
| 3 | 12 48·9 | 22 26 | 0·2610 | 9 25·1 | 200 28 | 17 51 | 0·4059 |
| 7 | 12 48·4 | 22 36 | 0·2727 | 9 8·9 | 201 21 | 18 20 | 0·4076 |
| 1 | 12 48·2 | 22 40 | 0·2845 | 8 53·1 | 202 14 | 18 49 | 0·4093 |
| 5 | 12 48·4 | 22 40 | 0·2962 | 8 37·6 | 203 7 | 19 18 | 0·4110 |
| 9 | 12 49·0 | 22 36 | 0·3079 | 8 22·4 | 204 0 | 19 46 | 0·4127 |
| 2 | 12 49·9 | 22 28 | 0·3196 | 8 7·6 | 204 53 | 20 14 | 0·4144 |
| 6 | 12 51·2 | 22 17 | 0·3311 | 7 53·2 | 205 46 | 20 41 | 0·4161 |
| 0 | 12 52·8 | 22 3 | 0·3425 | 7 39·1 | 206 39 | 21 7 | 0·4178 |
| 4 | 12 54·7 | 21 46 | 0·3537 | 7 25·3 | 207 32 | 21 33 | 0·4195 |
| 8 | 12 56·9 | 21 26 | 0·3646 | 7 11·7 | 208 25 | 21 59 | 0·4212 |
| 2 | 12 59·4 | 21 4 | 0·3753 | 6 58·5 | 209 18 | 22 24 | 0·4229 |
| 6 | 13 2·2 | 20 41 | 0·3858 | 6 45·6 | 210 10 | 22 49 | 0·4245 |
| 0 | 13 5·2 | 20 16 | 0·3960 | 6 32·9 | 211 3 | 23 13 | 0·4262 |
| 4 | 13 8·4 | 19 49 | 0·4060 | 6 20·4 | 211 55 | 23 37 | 0·4278 |
| 8 | 13 11·8 | 19 21 | 0·4157 | 6 8·0 | 212 47 | 24 0 | 0·4295 |
| 2 | 13 15·4 | 18 53 | 0·4251 | 5 55·9 | 213 39 | 24 23 | 0·4311 |
| 6 | 13 19·2 | 18 23 | 0·4342 | 5 44·0 | 214 31 | 24 45 | 0·4327 |
| 0 | 13 23·1 | 17 52 | 0·4431 | 5 32·2 | 215 23 | 25 7 | 0·4343 |
| 4 | 13 27·2 | 17 21 | 0·4517 | 5 20·5 | 216 15 | 25 28 | 0·4359 |
| 8 | 13 31·5 | 16 49 | 0·4599 | 5 9·0 | 217 7 | 25 49 | 0·4375 |
| 1 | 13 36·0 | 16 17 | 0·4679 | 4 57·8 | 217 59 | 26 9 | 0·4391 |
| 5 | 13 40·6 | 15 44 | 0·4756 | 4 46·7 | 218 51 | 26 29 | 0·4407 |
| 9 | 13 45·3 | 15 11 | 0·4831 | 4 35·6 | 219 43 | 26 49 | 0·4423 |
| 3 | 13 50·1 | 14 38 | 0·4903 | 4 24·6 | 220 34 | 27 8 | 0·4438 |
| 7 | 13 55·0 | 14 5 | 0·4972 | 4 13·8 | 221 26 | 27 27 | 0·4453 |
| 1 | 14 0·0 | 13 32 | 0·5039 | 4 3·1 | 222 17 | 27 45 | 0·4468 |
| | 5·1 | 12 59 | 0·5103 | 3 52·5 | 223 8 | 28 3 | 0·4483 |
| | 10·3 | 12 27 | 0·5164 | 3 41·9 | 223 59 | 28 20 | 0·4498 |
| | 5·6 | 11 55 | 0·5223 | 3 31·4 | 224 50 | 28 37 | 0·4513 |
| | | N.11 23 | 0·5279 | 3 21·1 | 225 41 | N.28 53 | 0·4528 |

## MEAN TIME.

| Date. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | Right Ascension. | Declination. | Log. of Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| 1839. | h m | ° ′ | | h m | ° ′ | ° ′ | |
| Sept. 6 | 14 21 ·0 | N.11 23 | 0 ·5279 | 3 21 ·1 | 225 41 | N.28 53 | |
| 10 | 14 26 ·5 | 10 52 | 0 ·5333 | 3 10 ·9 | 226 32 | 29 9 | |
| 14 | 14 32 ·1 | 10 21 | 0 ·5384 | 3 0 ·7 | 227 23 | 29 25 | |
| 18 | 14 37 ·7 | 9 51 | 0 ·5432 | 2 50 ·6 | 228 14 | 29 40 | |
| 22 | 14 43 ·4 | 9 21 | 0 ·5478 | 2 40 ·5 | 229 5 | 29 55 | |
| 26 | 14 49 ·2 | 8 52 | 0 ·5522 | 2 30 ·5 | 229 56 | 30 10 | |
| 30 | 14 55 ·0 | 8 25 | 0 ·5563 | 2 20 ·6 | 230 46 | 30 24 | |
| Oct. 4 | 15 0 ·9 | 7 58 | 0 ·5602 | 2 10 ·7 | 231 37 | 30 37 | |
| 8 | 15 6 ·8 | 7 32 | 0 ·5638 | 2 0 ·9 | 232 27 | 30 50 | |
| 12 | 15 12 ·8 | 7 7 | 0 ·5672 | 1 51 ·1 | 233 17 | 31 3 | |
| 16 | 15 18 ·8 | 6 43 | 0 ·5704 | 1 41 ·3 | 234 7 | 31 15 | |
| 20 | 15 24 ·9 | 6 20 | 0 ·5733 | 1 31 ·6 | 234 57 | 31 27 | |
| 24 | 15 31 ·0 | 5 58 | 0 ·5760 | 1 22 ·0 | 235 47 | 31 38 | |
| 28 | 15 37 ·1 | 5 38 | 0 ·5785 | 1 12 ·3 | 236 37 | 31 49 | |
| Nov. 1 | 15 43 ·2 | 5 19 | 0 ·5807 | 1 2 ·7 | 237 27 | 32 0 | |
| 5 | 15 49 ·4 | 5 1 | 0 ·5827 | 0 53 ·1 | 238 17 | 32 10 | |
| 9 | 15 55 ·6 | 4 45 | 0 ·5845 | 0 43 ·6 | 239 6 | 32 20 | |
| 13 | 16 1 ·8 | 4 30 | 0 ·5860 | 0 34 ·1 | 239 56 | 32 30 | |
| 17 | 16 8 ·1 | 4 16 | 0 ·5873 | 0 24 ·7 | 240 45 | 32 39 | |
| 21 | 16 14 ·3 | 4 4 | 0 ·5884 | 0 15 ·1 | 241 34 | 32 48 | |
| 25 | 16 20 ·6 | 3 53 | 0 ·5892 | 0 5 ·6 | 242 23 | 32 57 | |
| | | | | * | | | |
| 29 | 16 26 ·9 | 3 44 | 0 ·5898 | 23 53 ·7 | 243 12 | 33 5 | |
| Dec. 3 | 16 33 ·1 | 3 37 | 0 ·5902 | 23 44 ·2 | 244 1 | 33 13 | |
| 7 | 16 39 ·4 | 3 32 | 0 ·5904 | 23 34 ·7 | 244 50 | 33 20 | |
| 11 | 16 45 ·6 | 3 28 | 0 ·5903 | 23 25 ·1 | 245 39 | 33 27 | |
| 15 | 16 51 ·8 | 3 26 | 0 ·5900 | 23 15 ·6 | 246 28 | 33 34 | |
| 19 | 16 57 ·9 | 3 25 | 0 ·5896 | 23 6 ·0 | 247 16 | 33 40 | |
| 23 | 17 4 ·0 | 3 26 | 0 ·5889 | 22 56 ·4 | 248 4 | 33 46 | |
| 27 | 17 10 ·0 | 3 29 | 0 ·5880 | 22 46 ·7 | 248 52 | 33 52 | |
| 31 | 17 16 ·0 | 3 34 | 0 ·5868 | 22 36 ·9 | 249 40 | 33 57 | |
| 35 | 17 22 ·0 | N. 3 40 | 0 ·5854 | 22 27 ·0 | 250 28 | N.34 2 | |

## EPHEMERIS OF PALLAS FOR THE OPPOSITION.

### At Transit over the Meridian of Greenwich.

| Date. | | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Hor. Par. |
|---|---|---|---|---|---|---|
| 1839. | | h m s | s | ° ′ ″ | ″ | ″ |
| rch | 1 | 13 27 48 ·84 | — 0 ·40 | N. 3 38 38 ·5 | + 51 ·7 | 5 ·6 |
| | 2 | 13 27 38 ·29 | 0 ·47 | 3 59 26 ·3 | 52 ·2 | 5 ·7 |
| | 3 | 13 27 26 ·09 | 0 ·54 | 4 20 25 ·7 | 52 ·7 | 5 ·7 |
| | 4 | 13 27 12 ·27 | 0 ·61 | 4 41 35 ·8 | 53 ·1 | 5 ·7 |
| | 5 | 13 26 56 ·84 | 0 ·68 | 5 2 55 ·5 | 53 ·5 | 5 ·7 |
| | 6 | 13 26 39 ·81 | 0 ·74 | 5 24 24 ·0 | 53 ·9 | 5 ·7 |
| | 7 | 13 26 21 ·19 | 0 ·81 | 5 46 0 ·7 | 54 ·2 | 5 ·8 |
| | 8 | 13 26 1 ·02 | 0 ·87 | 6 7 44 ·4 | 54 ·5 | 5 ·8 |
| | 9 | 13 25 39 ·32 | 0 ·94 | 6 29 34 ·4 | 54 ·7 | 5 ·8 |
| | 10 | 13 25 16 ·12 | 1 ·00 | 6 51 29 ·6 | 54 ·9 | 5 ·8 |
| | 11 | 13 24 51 ·46 | 1 ·06 | 7 13 29 ·2 | 55 ·1 | 5 ·8 |
| | 12 | 13 24 25 ·37 | 1 ·12 | 7 35 32 ·0 | 55 ·2 | 5 ·8 |
| | 13 | 13 23 57 ·88 | 1 ·17 | 7 57 37 ·1 | 55 ·2 | 5 ·8 |
| | 14 | 13 23 29 ·04 | 1 ·23 | 8 19 43 ·3 | 55 ·3 | 5 ·8 |
| | 15 | 13 22 58 ·90 | 1 ·28 | 8 41 49 ·5 | 55 ·2 | 5 ·9 |
| | 16 | 13 22 27 ·50 | 1 ·33 | 9 3 54 ·8 | 55 ·2 | 5 ·9 |
| | 17 | 13 21 54 ·89 | 1 ·38 | 9 25 58 ·0 | 55 ·1 | 5 ·9 |
| | 18 | 13 21 21 ·10 | 1 ·43 | 9 47 58 ·2 | 54 ·9 | 5 ·9 |
| | 19 | 13 20 46 ·21 | 1 ·48 | 10 9 54 ·0 | 54 ·7 | 5 ·9 |
| | 20 | 13 20 10 ·26 | 1 ·52 | 10 31 44 ·5 | 54 ·5 | 5 ·9 |
| | 21 | 13 19 33 ·30 | 1 ·56 | 10 53 28 ·4 | 54 ·2 | 5 ·9 |
| | 22 | 13 18 55 ·41 | 1 ·60 | 11 15 4 ·9 | 53 ·8 | 5 ·9 |
| | 23 | 13 18 16 ·64 | 1 ·63 | 11 36 32 ·9 | 53 ·5 | 5 ·9 |
| | 24 | 13 17 37 ·05 | 1 ·67 | 11 57 51 ·2 | 53 ·0 | 5 ·9 |
| | 25 | 13 16 56 ·68 | 1 ·70 | 12 18 58 ·8 | 52 ·6 | 5 ·9 |
| | 26 | 13 16 15 ·61 | 1 ·72 | 12 39 54 ·7 | 52 ·1 | 5 ·8 |
| | 27 | 13 15 33 ·90 | 1 ·75 | 13 0 37 ·9 | 51 ·5 | 5 ·8 |
| | 28 | 13 14 51 ·60 | 1 ·77 | 13 21 7 ·6 | 50 ·9 | 5 ·8 |
| | 29 | 13 14 8 ·77 | 1 ·79 | 13 41 22 ·7 | 50 ·3 | 5 ·8 |
| | 30 | 13 13 25 ·47 | 1 ·81 | 14 1 22 ·5 | 49 ·7 | 5 ·8 |
| 8 | 31 | 13 12 41 ·77 | — 1 ·83 | N. 14 21 6 ·0 | + 49 ·0 | 5 ·8 |

## EPHEMERIS OF PALLAS FOR THE OPPOSITION.

At Transit over the Meridian of Greenwich.

| Date. | | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. |
|---|---|---|---|---|---|
| 1839. | | h m s | s | ° ′ ″ | ″ |
| March | 31 | 13 12 41 ·77 | — 1 ·83 | N.14 21 6 ·0 | + 49 ·0 |
| April | 1 | 13 11 57 ·73 | 1 ·84 | 14 40 32 ·4 | 48 ·2 |
| | 2 | 13 11 13 ·41 | 1 ·85 | 14 59 40 ·8 | 47 ·5 |
| | 3 | 13 10 28 ·87 | 1 ·86 | 15 18 30 ·6 | 46 ·7 |
| | 4 | 13 9 44 ·17 | 1 ·86 | 15 37 0 ·9 | 45 ·8 |
| | 5 | 13 8 59 ·37 | 1 ·87 | 15 55 11 ·0 | 45 ·0 |
| | 6 | 13 8 14 ·57 | 1 ·87 | 16 13 0 ·2 | 44 ·1 |
| | 7 | 13 7 29 ·81 | 1 ·86 | 16 30 28 ·0 | 43 ·2 |
| | 8 | 13 6 45 ·17 | 1 ·86 | 16 47 33 ·6 | 42 ·3 |
| | 9 | 13 6 0 ·69 | 1 ·85 | 17 4 16 ·4 | 41 ·3 |
| | 10 | 13 5 16 ·46 | 1 ·84 | 17 20 36 ·0 | 40 ·3 |
| | 11 | 13 4 32 ·54 | 1 ·82 | 17 36 31 ·9 | 39 ·3 |
| | 12 | 13 3 48 ·99 | 1 ·81 | 17 52 3 ·6 | 38 ·3 |
| | 13 | 13 3 5 ·87 | 1 ·79 | 18 7 10 ·8 | 37 ·3 |
| | 14 | 13 2 23 ·25 | 1 ·76 | 18 21 53 ·3 | 36 ·2 |
| | 15 | 13 1 41 ·17 | 1 ·74 | 18 36 10 ·6 | 35 ·2 |
| | 16 | 13 0 59 ·72 | 1 ·71 | 18 50 2 ·4 | 34 ·1 |
| | 17 | 13 0 18 ·93 | 1 ·68 | 19 3 28 ·8 | 33 ·1 |
| | 18 | 12 59 38 ·88 | 1 ·65 | 19 16 29 ·5 | 32 ·0 |
| | 19 | 12 58 59 ·61 | 1 ·62 | 19 29 4 ·4 | 30 ·9 |
| | 20 | 12 58 21 ·17 | 1 ·58 | 19 41 13 ·4 | 29 ·8 |
| | 21 | 12 57 43 ·61 | 1 ·55 | 19 52 56 ·6 | 28 ·8 |
| | 22 | 12 57 6 ·97 | 1 ·51 | 20 4 13 ·9 | 27 ·7 |
| | 23 | 12 56 31 ·30 | 1 ·47 | 20 15 5 ·5 | 26 ·6 |
| | 24 | 12 55 56 ·64 | 1 ·42 | 20 25 31 ·5 | 25 ·6 |
| | 25 | 12 55 23 ·01 | 1 ·38 | 20 35 31 ·9 | 24 ·5 |
| | 26 | 12 54 50 ·46 | 1 ·33 | 20 45 7 ·0 | 23 ·4 |
| | 27 | 12 54 19 ·02 | 1 ·29 | 20 54 16 ·9 | 22 ·4 |
| | 28 | 12 53 48 ·70 | 1 ·24 | 21 3 1 ·8 | 21 ·4 |
| | 29 | 12 53 19 ·53 | 1 ·19 | 21 11 22 ·0 | 20 ·3 |
| | 30 | 12 52 51 ·57 | — 1 ·14 | N.21 19 17 ·6 | + |

## MEAN TIME.

| Date. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | Right Ascension. | Declination. | Log. of Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. of Rad. Vect. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| 1839. | h m | ° ′ | | h m | ° ′ | ° ′ | |
| an. 1 | 13 14·0 | N.4 9 | 0·3894 | 18 29·9 | 172 34 | N.10 36 | 0·4086 |
| 5 | 13 18·3 | 3 57 | 0·3803 | 18 18·4 | 173 35 | 10 36 | 0·4088 |
| 9 | 13 22·3 | 3 48 | 0·3711 | 18 6·7 | 174 35 | 10 36 | 0·4090 |
| 13 | 13 26·1 | 3 41 | 0·3617 | 17 54·7 | 175 36 | 10 35 | 0·4092 |
| 17 | 13 29·6 | 3 36 | 0·3522 | 17 42·4 | 176 36 | 10 34 | 0·4095 |
| 21 | 13 32·8 | 3 33 | 0·3426 | 17 29·8 | 177 37 | 10 33 | 0·4097 |
| 25 | 13 35·7 | 3 32 | 0·3329 | 17 16·9 | 178 37 | 10 31 | 0·4100 |
| 29 | 13 38·3 | 3 34 | 0·3231 | 17 3·7 | 179 38 | 10 30 | 0·4103 |
| Feb. 2 | 13 40·6 | 3 38 | 0·3132 | 16 50·2 | 180 38 | 10 28 | 0·4106 |
| 6 | 13 42·5 | 3 44 | 0·3034 | 16 36·3 | 181 38 | 10 26 | 0·4108 |
| 10 | 13 44·0 | 3 53 | 0·2937 | 16 22·0 | 182 38 | 10 24 | 0·4111 |
| 14 | 13 45·1 | 4 4 | 0·2842 | 16 7·3 | 183 38 | 10 22 | 0·4114 |
| 18 | 13 45·8 | 4 17 | 0·2749 | 15 52·1 | 184 38 | 10 19 | 0·4117 |
| 22 | 13 46·1 | 4 32 | 0·2659 | 15 36·5 | 185 38 | 10 16 | 0·4120 |
| 26 | 13 45·9 | 4 48 | 0·2572 | 15 20·5 | 186 37 | 10 13 | 0·4124 |
| Mar. 2 | 13 45·3 | 5 6 | 0·2490 | 15 4·2 | 187 37 | 10 10 | 0·4127 |
| 6 | 13 44·2 | 5 25 | 0·2414 | 14 47·4 | 188 36 | 10 7 | 0·4131 |
| 10 | 13 42·7 | 5 45 | 0·2345 | 14 30·2 | 189 36 | 10 4 | 0·4134 |
| 14 | 13 40·8 | 6 6 | 0·2283 | 14 12·6 | 190 35 | 10 0 | 0·4138 |
| 18 | 13 38·6 | 6 27 | 0·2230 | 13 54·6 | 191 34 | 9 56 | 0·4141 |
| 22 | 13 36·0 | 6 47 | 0·2186 | 13 36·2 | 192 33 | 9 52 | 0·4145 |
| 26 | 13 33·1 | 7 7 | 0·2152 | 13 17·5 | 193 32 | 9 48 | 0·4149 |
| 30 | 13 30·0 | 7 25 | 0·2129 | 12 58·6 | 194 31 | 9 44 | 0·4153 |
| Apr. 3 | 13 26·7 | 7 41 | 0·2117 | 12 39·6 | 195 30 | 9 40 | 0·4157 |
| 7 | 13 23·2 | 7 56 | 0·2115 | 12 20·5 | 196 28 | 9 35 | 0·4161 |
| 11 | 13 19·7 | 8 8 | 0·2125 | 12 1·3 | 197 27 | 9 30 | 0·4165 |
| 15 | 13 16·3 | 8 17 | 0·2146 | 11 42·2 | 198 25 | 9 25 | 0·4169 |
| 19 | 13 12·9 | 8 23 | 0·2178 | 11 23·1 | 199 23 | 9 20 | 0·4173 |
| | 13 9·6 | 8 26 | 0·2221 | 11 4·1 | 200 21 | 9 15 | 0·4177 |
| | [illegible]·5 | 8 26 | 0·2273 | 10 45·4 | 201 19 | 9 10 | 0·4181 |
| | | 8 22 | 0·2334 | 10 26·9 | 202 16 | 9 4 | 0·4186 |
| | | | 0·2403 | 10 8·7 | 203 14 | N. 8 59 | 0·4190 |

## MEAN TIME.

| Date. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | Right Ascension. | Declination. | Log. of Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. of Rad. Ve |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| 1839. | h m | ° ′ | | h m | ° ′ | ° ′ | |
| May 5 | 13 1·2 | N.8 15 | 0·2403 | 10 8·7 | 203 14 | N.8 59 | 0·419 |
| 9 | 12 59·1 | 8 5 | 0·2478 | 9 50·8 | 204 11 | 8 53 | 0·419 |
| 13 | 12 57·3 | 7 52 | 0·2559 | 9 33·3 | 205 8 | 8 47 | 0·419 |
| 17 | 12 55·9 | 7 36 | 0·2646 | 9 16·2 | 206 5 | 8 41 | 0·420 |
| 21 | 12 54·8 | 7 17 | 0·2737 | 8 59·5 | 207 2 | 8 35 | 0·420 |
| 25 | 12 54·1 | 6 55 | 0·2832 | 8 43·1 | 207 58 | 8 29 | 0·421 |
| 29 | 12 53·8 | 6 31 | 0·2929 | 8 27·1 | 208 55 | 8 23 | 0·421 |
| June 2 | 12 53·9 | 6 5 | 0·3028 | 8 11·5 | 209 51 | 8 16 | 0·422 |
| 6 | 12 54·3 | 5 37 | 0·3129 | 7 56·3 | 210 48 | 8 10 | 0·422 |
| 10 | 12 55·1 | 5 8 | 0·3230 | 7 41·4 | 211 44 | 8 3 | 0·423 |
| 14 | 12 56·3 | 4 37 | 0·3331 | 7 26·8 | 212 40 | 7 56 | 0·423 |
| 18 | 12 57·8 | 4 4 | 0·3432 | 7 12·6 | 213 36 | 7 49 | 0·424 |
| 22 | 12 59·6 | 3 30 | 0·3533 | 6 58·7 | 214 32 | 7 42 | 0·424 |
| 26 | 13 1·7 | 2 55 | 0·3633 | 6 45·1 | 215 27 | 7 35 | 0·425 |
| 30 | 13 4·1 | 2 19 | 0·3731 | 6 31·8 | 216 22 | 7 28 | 0·425 |
| July 4 | 13 6·7 | 1 42 | 0·3828 | 6 18·7 | 217 17 | 7 21 | 0·426 |
| 8 | 13 9·6 | 1 4 | 0·3923 | 6 5·8 | 218 12 | 7 14 | 0·426 |
| 12 | 13 12·8 | N.0 25 | 0·4017 | 5 53·2 | 219 7 | 7 6 | 0·427 |
| 16 | 13 16·2 | S.0 14 | 0·4109 | 5 40·8 | 220 2 | 6 59 | 0·427 |
| 20 | 13 19·8 | 0 54 | 0·4198 | 5 28·7 | 220 56 | 6 51 | 0·428 |
| 24 | 13 23·6 | 1 34 | 0·4285 | 5 16·8 | 221 51 | 6 43 | 0·428 |
| 28 | 13 27·5 | 2 14 | 0·4370 | 5 5·0 | 222 45 | 6 35 | 0·429 |
| Aug. 1 | 13 31·6 | 2 54 | 0·4453 | 4 53·4 | 223 39 | 6 27 | 0·429 |
| 5 | 13 35·9 | 3 35 | 0·4533 | 4 42·0 | 224 33 | 6 19 | 0·430 |
| 9 | 13 40·4 | 4 15 | 0·4611 | 4 30·7 | 225 27 | 6 11 | 0·430 |
| 13 | 13 45·1 | 4 56 | 0·4686 | 4 19·6 | 226 21 | 6 3 | 0·431 |
| 17 | 13 49·9 | 5 36 | 0·4759 | 4 8·6 | 227 15 | 5 55 | 0·431 |
| 21 | 13 54·8 | 6 17 | 0·4829 | 3 57·8 | 228 8 | 5 46 | 0·432 |
| 25 | 13 59·8 | 6 58 | 0·4897 | 3 47·1 | 229 1 | 5 38 | 0·432 |
| 29 | 14 5·0 | 7 38 | 0·4963 | 3 36·6 | 229 54 | 5 29 | 0·433 |
| Sept. 2 | 14 10·3 | 8 18 | 0·5026 | 3 26·2 | 230 47 | 5 21 | 0·433 |
| 6 | 14 15·7 | S.8 58 | 0·5086 | 3 15·9 | 231 39 | N.5 12 | 0·434 |

## MEAN TIME.

| Date. | Geocentric. Right Ascension. Noon. | Declination. Noon. | Log. of Dist. from the Earth. Noon. | Meridian Passage. | Heliocentric. Longitude. Noon. | Latitude. Noon. | Log. of Rad. Vect. Noon. |
|---|---|---|---|---|---|---|---|
| 1839. | h m | ° ′ | | h m | ° ′ | ° ′ | |
| ept. 6 | 14 15·7 | S. 8 58 | 0·5086 | 3 15·9 | 231 39 | N.5 12 | 0·4342 |
| 10 | 14 21·2 | 9 38 | 0·5144 | 3 5·7 | 232 32 | 5 4 | 0·4347 |
| 14 | 14 26·9 | 10 17 | 0·5199 | 2 55·5 | 233 24 | 4 55 | 0·4353 |
| 18 | 14 32·7 | 10 55 | 0·5252 | 2 45·4 | 234 16 | 4 47 | 0·4358 |
| 22 | 14 38·5 | 11 33 | 0·5302 | 2 35·5 | 235 8 | 4 38 | 0·4363 |
| 26 | 14 44·4 | 12 10 | 0·5349 | 2 25·7 | 236 0 | 4 29 | 0·4368 |
| 30 | 14 50·4 | 12 47 | 0·5394 | 2 16·0 | 236 52 | 4 20 | 0·4374 |
| ct. 4 | 14 56·5 | 13 23 | 0·5437 | 2 6·3 | 237 44 | 4 12 | 0·4379 |
| 8 | 15 2·7 | 13 58 | 0·5477 | 1 56·7 | 238 35 | 4 3 | 0·4384 |
| 12 | 15 9·0 | 14 33 | 0·5514 | 1 47·2 | 239 27 | 3 54 | 0·4389 |
| 16 | 15 15·3 | 15 7 | 0·5549 | 1 37·8 | 240 18 | 3 45 | 0·4395 |
| 20 | 15 21·7 | 15 40 | 0·5581 | 1 28·5 | 241 9 | 3 36 | 0·4400 |
| 24 | 15 28·2 | 16 12 | 0·5611 | 1 19·3 | 242 0 | 3 27 | 0·4405 |
| 28 | 15 34·8 | 16 43 | 0·5638 | 1 10·1 | 242 51 | 3 18 | 0·4410 |
| Nov. 1 | 15 41·5 | 17 14 | 0·5663 | 1 1·0 | 243 42 | 3 9 | 0·4416 |
| 5 | 15 48·2 | 17 44 | 0·5685 | 0 52·0 | 244 33 | 3 0 | 0·4421 |
| 9 | 15 54·9 | 18 12 | 0·5705 | 0 43·0 | 245 23 | 2 51 | 0·4426 |
| 13 | 16 1·7 | 18 39 | 0·5722 | 0 34·0 | 246 13 | 2 42 | 0·4431 |
| 17 | 16 8·5 | 19 5 | 0·5737 | 0 25·1 | 247 3 | 2 33 | 0·4436 |
| 21 | 16 15·4 | 19 30 | 0·5749 | 0 16·2 | 247 53 | 2 24 | 0·4441 |
| 25 | 16 22·3 | 19 53 | 0·5758 | 0 7·3 | 248 43 | 2 15 | 0·4446 |
| 29 | 16 29·3 | 20 16 | 0·5765 | * 23 56·3 | 249 33 | 2 6 | 0·4451 |
| Dec. 3 | 16 36·3 | 20 37 | 0·5769 | 23 47·6 | 250 23 | 1 56 | 0·4456 |
| 7 | 16 43·3 | 20 57 | 0·5771 | 23 38·8 | 251 13 | 1 47 | 0·4461 |
| 11 | 16 50·3 | 21 16 | 0·5770 | 23 30·1 | 252 2 | 1 38 | 0·4467 |
| 15 | 16 57·3 | 21 34 | 0·5766 | 23 21·4 | 252 51 | 1 29 | 0·4472 |
| 19 | 17 4·4 | 21 51 | 0·5760 | 23 12·7 | 253 40 | 1 20 | 0·4477 |
| 23 | 17 11·4 | 22 7 | 0·5751 | 23 3·9 | 254 29 | 1 11 | 0·4482 |
| 27 | 17 18·4 | 22 21 | 0·5740 | 22 55·2 | 255 18 | 1 2 | 0·4487 |
| | 25·5 | 22 34 | 0·5726 | 22 46·5 | 256 7 | 0 53 | 0·4492 |
| | 5 | S.22 46 | 0·5709 | 22 37·8 | 256 55 | N.0 43 | 0·4496 |

## EPHEMERIS OF CERES FOR THE OPPOSITION.

At Transit over the Meridian of Greenwich.

| Date. | | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Hor. Par. |
|---|---|---|---|---|---|---|
| 1839. | | h m s | s | ° ′ ″ | ″ | ″ |
| March | 7 | 13 43 41 ·94 | — 0 ·89 | N.5 32 32 ·7 | + 12 ·5 | 4 ·9 |
| | 8 | 13 43 19 ·74 | 0 ·96 | 5 37 33 ·8 | 12 ·6 | 5 ·0 |
| | 9 | 13 42 55 ·98 | 1 ·02 | 5 42 37 ·5 | 12 ·7 | 5 ·0 |
| | 10 | 13 42 30 ·70 | 1 ·08 | 5 47 43 ·4 | 12 ·8 | 5 ·0 |
| | 11 | 13 42 3 ·91 | 1 ·14 | 5 52 51 ·2 | 12 ·9 | 5 ·0 |
| | 12 | 13 41 35 ·64 | 1 ·21 | 5 58 0 ·4 | 12 ·9 | 5 ·0 |
| | 13 | 13 41 5 ·91 | 1 ·27 | 6 3 10 ·6 | 12 ·9 | 5 ·1 |
| | 14 | 13 40 34 ·75 | 1 ·33 | 6 8 21 ·3 | 13 ·0 | 5 ·1 |
| | 15 | 13 40 2 ·20 | 1 ·38 | 6 13 32 ·2 | 13 ·0 | 5 ·1 |
| | 16 | 13 39 28 ·29 | 1 ·44 | 6 18 43 ·0 | 12 ·9 | 5 ·1 |
| | 17 | 13 38 53 ·05 | 1 ·50 | 6 23 53 ·1 | 12 ·9 | 5 ·1 |
| | 18 | 13 38 16 ·52 | 1 ·55 | 6 29 2 ·1 | 12 ·8 | 5 ·1 |
| | 19 | 13 37 38 ·73 | 1 ·60 | 6 34 9 ·6 | 12 ·8 | 5 ·2 |
| | 20 | 13 36 59 ·75 | 1 ·65 | 6 39 15 ·1 | 12 ·7 | 5 ·2 |
| | 21 | 13 36 19 ·60 | 1 ·70 | 6 44 18 ·2 | 12 ·6 | 5 ·2 |
| | 22 | 13 35 38 ·33 | 1 ·74 | 6 49 18 ·4 | 12 ·4 | 5 ·2 |
| | 23 | 13 34 56 ·00 | 1 ·79 | 6 54 15 ·3 | 12 ·3 | 5 ·2 |
| | 24 | 13 34 12 ·65 | 1 ·83 | 6 59 8 ·6 | 12 ·1 | 5 ·2 |
| | 25 | 13 33 28 ·33 | 1 ·87 | 7 3 57 ·7 | 12 ·0 | 5 ·2 |
| | 26 | 13 32 43 ·09 | 1 ·90 | 7 8 42 ·3 | 11 ·8 | 5 ·2 |
| | 27 | 13 31 56 ·98 | 1 ·94 | 7 13 22 ·0 | 11 ·5 | 5 ·2 |
| | 28 | 13 31 10 ·04 | 1 ·97 | 7 17 56 ·4 | 11 ·3 | 5 ·2 |
| | 29 | 13 30 22 ·33 | 2 ·00 | 7 22 25 ·0 | 11 ·1 | 5 ·2 |
| | 30 | 13 29 33 ·91 | 2 ·03 | 7 26 47 ·5 | 10 ·8 | 5 ·3 |
| | 31 | 13 28 44 ·82 | 2 ·06 | 7 31 3 ·4 | 10 ·5 | 5 ·3 |
| April | 1 | 13 27 55 ·15 | 2 ·08 | 7 35 12 ·4 | 10 ·2 | 5 ·3 |
| | 2 | 13 27 4 ·93 | 2 ·10 | 7 39 14 ·1 | 9 ·9 | 5 ·3 |
| | 3 | 13 26 14 ·22 | 2 ·12 | 7 43 8 ·2 | 9 ·6 | 5 ·3 |
| | 4 | 13 25 23 ·08 | 2 ·14 | 7 46 54 ·4 | 9 ·2 | 5 ·3 |
| | 5 | 13 24 31 ·56 | 2 ·15 | 7 50 32 ·1 | 8 ·9 | 5 ·3 |
| ♂ | 6 | 13 23 39 ·73 | — 2 ·16 | N.7 54 1 ·1 | + 8 ·5 | 5 ·3 |

## EPHEMERIS OF CERES FOR THE OPPOSITION.

At Transit over the Meridian of Greenwich.

| Date. | | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | *Apparent* Declination. | Variation in Declination in 1 Hour of Long. | Hor. Par. |
|---|---|---|---|---|---|---|
| 1839. | | h m s | s | ° ′ ″ | ″ | ″ |
| il | 6 | 13 23 39 ·73 | − 2 ·16 | N.7 54 1 ·1 | + 8 ·5 | 5 ·3 |
| | 7 | 13 22 47 ·67 | 2 ·17 | 7 57 21 ·0 | 8 ·1 | 5 ·3 |
| | 8 | 13 21 55 ·43 | 2 ·18 | 8 0 31 ·5 | 7 ·7 | 5 ·3 |
| | 9 | 13 21 3 ·09 | 2 ·18 | 8 3 32 ·3 | 7 ·3 | 5 ·3 |
| | 10 | 13 20 10 ·70 | 2 ·18 | 8 6 23 ·0 | 6 ·9 | 5 ·3 |
| | 11 | 13 19 18 ·32 | 2 ·18 | 8 9 3 ·3 | 6 ·5 | 5 ·3 |
| | 12 | 13 18 26 ·02 | 2 ·18 | 8 11 32 ·9 | 6 ·0 | 5 ·3 |
| | 13 | 13 17 33 ·87 | 2 ·17 | 8 13 51 ·7 | 5 ·6 | 5 ·2 |
| | 14 | 13 16 41 ·94 | 2 ·16 | 8 15 59 ·3 | 5 ·1 | 5 ·2 |
| | 15 | 13 15 50 ·28 | 2 ·15 | 8 17 55 ·5 | 4 ·6 | 5 ·2 |
| | 16 | 13 14 58 ·96 | 2 ·13 | 8 19 40 ·2 | 4 ·1 | 5 ·2 |
| | 17 | 13 14 8 ·04 | 2 ·11 | 8 21 13 ·1 | 3 ·6 | 5 ·2 |
| | 18 | 13 13 17 ·59 | 2 ·09 | 8 22 34 ·2 | 3 ·1 | 5 ·2 |
| | 19 | 13 12 27 ·68 | 2 ·07 | 8 23 43 ·2 | 2 ·6 | 5 ·2 |
| | 20 | 13 11 38 ·35 | 2 ·04 | 8 24 40 ·1 | 2 ·1 | 5 ·2 |
| | 21 | 13 10 49 ·65 | 2 ·01 | 8 25 24 ·6 | 1 ·6 | 5 ·2 |
| | 22 | 13 10 1 ·64 | 1 ·99 | 8 25 56 ·8 | 1 ·1 | 5 ·2 |
| | 23 | 13 9 14 ·36 | 1 ·95 | 8 26 16 ·7 | 0 ·6 | 5 ·1 |
| | 24 | 13 8 27 ·88 | 1 ·92 | 8 26 24 ·1 | + 0 ·1 | 5 ·1 |
| | 25 | 13 7 42 ·23 | 1 ·88 | 8 26 19 ·2 | − 0 ·5 | 5 ·1 |
| | 26 | 13 6 57 ·47 | 1 ·85 | 8 26 1 ·7 | 1 ·0 | 5 ·1 |
| | 27 | 13 6 13 ·62 | 1 ·81 | 8 25 31 ·9 | 1 ·5 | 5 ·1 |
| | 28 | 13 5 30 ·73 | 1 ·77 | 8 24 49 ·7 | 2 ·0 | 5 ·1 |
| | 29 | 13 4 48 ·83 | 1 ·72 | 8 23 55 ·1 | 2 ·5 | 5 ·0 |
| | 30 | 13 4 7 ·97 | 1 ·68 | 8 22 48 ·3 | 3 ·0 | 5 ·0 |
| y | 1 | 13 3 28 ·18 | 1 ·64 | 8 21 29 ·1 | 3 ·6 | 5 ·0 |
| | 2 | 13 2 49 ·49 | 1 ·59 | 8 19 57 ·8 | 4 ·1 | 5 ·0 |
| | 3 | 13 2 11 ·94 | 1 ·54 | 8 18 14 ·2 | 4 ·6 | 5 ·0 |
| | 4 | 13 1 35 ·56 | 1 ·49 | 8 16 18 ·6 | 5 ·1 | 4 ·9 |
| | 5 | 13 1 0 ·38 | 1 ·44 | 8 14 11 ·0 | 5 ·6 | 4 ·9 |
| | 6 | 13 0 26 ·44 | − 1 ·39 | N.8 11 51 ·6 | − 6 ·1 | 4 ·9 |

# JANUARY, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | |
|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ |
| 1 | 13 5 9·24 | S. 5 31 42·1 | 0·7388401 | 18 20·6 | 186 48 56·8 | N. 1 18 41·5 |
| 2 | 13 5 30·54 | 5 33 38·4 | ·7375656 | 18 17·0 | 186 53 28·8 | 1 18 41·8 |
| 3 | 13 5 51·26 | 5 35 30·9 | ·7362852 | 18 13·4 | 186 58 0·8 | 1 18 42·0 |
| 4 | 13 6 11·39 | 5 37 19·7 | ·7349993 | 18 9·8 | 187 2 32·8 | 1 18 42·2 |
| 5 | 13 6 30·92 | 5 39 4·7 | ·7337082 | 18 6·2 | 187 7 4·8 | 1 18 42·3 |
| 6 | 13 6 49·86 | 5 40 45·8 | ·7324118 | 18 2·6 | 187 11 36·7 | 1 18 42·5 |
| 7 | 13 7 8·20 | 5 42 23·1 | ·7311104 | 17 58·9 | 187 16 8·7 | 1 18 42·7 |
| 8 | 13 7 25·92 | 5 43 56·4 | ·7298047 | 17 55·3 | 187 20 40·6 | 1 18 42·8 |
| 9 | 13 7 43·03 | 5 45 25·8 | ·7284948 | 17 51·6 | 187 25 12·6 | 1 18 43·0 |
| 10 | 13 7 59·52 | 5 46 51·2 | ·7271811 | 17 48·0 | 187 29 44·6 | 1 18 43·1 |
| 11 | 13 8 15·37 | 5 48 12·6 | ·7258642 | 17 44·3 | 187 34 16·6 | 1 18 43·3 |
| 12 | 13 8 30·59 | 5 49 29·9 | ·7245440 | 17 40·6 | 187 38 48·7 | 1 18 43·4 |
| 13 | 13 8 45·17 | 5 50 43·2 | ·7232210 | 17 36·9 | 187 43 20·8 | 1 18 43·5 |
| 14 | 13 8 59·10 | 5 51 52·5 | ·7218959 | 17 33·2 | 187 47 52·9 | 1 18 43·6 |
| 15 | 13 9 12·37 | 5 52 57·7 | ·7205686 | 17 29·5 | 187 52 25·0 | 1 18 43·7 |
| 16 | 13 9 24·98 | 5 53 58·7 | ·7192398 | 17 25·7 | 187 56 57·1 | 1 18 43·8 |
| 17 | 13 9 36·93 | 5 54 55·5 | ·7179100 | 17 22·0 | 188 1 29·1 | 1 18 43·9 |
| 18 | 13 9 48·21 | 5 55 48·1 | ·7165793 | 17 18·3 | 188 6 1·0 | 1 18 44·0 |
| 19 | 13 9 58·81 | 5 56 36·5 | ·7152483 | 17 14·5 | 188 10 32·9 | 1 18 44·1 |
| 20 | 13 10 8·73 | 5 57 20·7 | ·7139176 | 17 10·7 | 188 15 4·8 | 1 18 44·1 |
| 21 | 13 10 17·97 | 5 58 0·6 | ·7125873 | 17 6·9 | 188 19 36·7 | 1 18 44·2 |
| 22 | 13 10 26·53 | 5 58 36·3 | ·7112578 | 17 3·1 | 188 24 8·6 | 1 18 44·2 |
| 23 | 13 10 34·41 | 5 59 7·9 | ·7099299 | 16 59·3 | 188 28 40·6 | 1 18 44·3 |
| 24 | 13 10 41·61 | 5 59 35·3 | ·7086035 | 16 55·5 | 188 33 12·6 | 1 18 44·3 |
| 25 | 13 10 48·12 | 5 59 58·4 | ·7072793 | 16 51·7 | 188 37 44·6 | 1 18 44·3 |
| 26 | 13 10 53·94 | 6 0 17·3 | ·7059580 | 16 47·8 | 188 42 16·7 | 1 18 44·3 |
| 27 | 13 10 59·06 | 6 0 32·0 | ·7046395 | 16 44·0 | 188 46 48·8 | 1 18 44·3 |
| 28 | 13 11 3·49 | 6 0 42·4 | ·7033243 | 16 40·1 | 188 51 20·8 | 1 18 44·3 |
| 29 | 13 11 7·21 | 6 0 48·5 | ·7020133 | 16 36·2 | 188 55 52·8 | 1 18 44·3 |
| 30 | 13 11 10·23 | 6 0 50·3 | ·7007064 | 16 32·3 | 189 0 24·8 | 1 18 44·3 |
| 31 | 13 11 12·54 | 6 0 47·8 | ·6994042 | 16 28·4 | 189 4 56·7 | [illegible] |
| 32 | 13 11 14·14 | S. 6 0 41·0 | 0·6981074 | 16 24·5 | | |

# JANUARY, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 13 5 25 ·56 | + 0 ·88 | 1 ·22 | S. 5 33 11 ·3 | — 4 ·8 | 16 ·9 | 1 ·6 |
| 13 5 46 ·37 | 0 ·86 | 1 ·22 | 5 35 4 ·5 | 4 ·6 | 16 ·9 | 1 ·6 |
| 13 6 6 ·60 | 0 ·83 | 1 ·22 | 5 36 53 ·9 | 4 ·5 | 17 ·0 | 1 ·6 |
| 13 6 26 ·24 | 0 ·81 | 1 ·23 | 5 38 39 ·6 | 4 ·3 | 17 ·0 | 1 ·6 |
| 13 6 45 ·27 | 0 ·78 | 1 ·23 | 5 40 21 ·4 | 4 ·2 | 17 ·1 | 1 ·6 |
| 13 7 3 ·71 | 0 ·76 | 1 ·23 | 5 41 59 ·3 | 4 ·0 | 17 ·1 | 1 ·6 |
| 13 7 21 ·54 | 0 ·73 | 1 ·23 | 5 43 33 ·4 | 3 ·8 | 17 ·2 | 1 ·6 |
| 13 7 38 ·76 | 0 ·70 | 1 ·24 | 5 45 3 ·6 | 3 ·7 | 17 ·3 | 1 ·6 |
| 13 7 55 ·36 | 0 ·68 | 1 ·24 | 5 46 29 ·8 | 3 ·5 | 17 ·3 | 1 ·6 |
| 13 8 11 ·34 | 0 ·65 | 1 ·25 | 5 47 52 ·0 | 3 ·3 | 17 ·4 | 1 ·6 |
| 13 8 26 ·68 | 0 ·63 | 1 ·25 | 5 49 10 ·2 | 3 ·2 | 17 ·4 | 1 ·6 |
| 13 8 41 ·39 | 0 ·60 | 1 ·26 | 5 50 24 ·3 | 3 ·0 | 17 ·5 | 1 ·6 |
| 13 8 55 ·46 | 0 ·57 | 1 ·26 | 5 51 34 ·5 | 2 ·8 | 17 ·5 | 1 ·6 |
| 13 9 8 ·88 | 0 ·55 | 1 ·27 | 5 52 40 ·6 | 2 ·7 | 17 ·6 | 1 ·6 |
| 13 9 21 ·63 | 0 ·52 | 1 ·27 | 5 53 42 ·6 | 2 ·5 | 17 ·6 | 1 ·6 |
| 13 9 33 ·73 | 0 ·49 | 1 ·28 | 5 54 40 ·4 | 2 ·3 | 17 ·7 | 1 ·6 |
| 13 9 45 ·16 | 0 ·46 | 1 ·28 | 5 55 34 ·0 | 2 ·1 | 17 ·7 | 1 ·6 |
| 13 9 55 ·92 | 0 ·43 | 1 ·28 | 5 56 23 ·4 | 2 ·0 | 17 ·8 | 1 ·7 |
| 13 10 6 ·00 | 0 ·41 | 1 ·29 | 5 57 8 ·7 | 1 ·8 | 17 ·8 | 1 ·7 |
| 13 10 15 ·41 | 0 ·38 | 1 ·29 | 5 57 49 ·7 | 1 ·6 | 17 ·9 | 1 ·7 |
| 13 10 24 ·14 | 0 ·35 | 1 ·29 | 5 58 26 ·5 | 1 ·5 | 18 ·0 | 1 ·7 |
| 13 10 32 ·19 | 0 ·32 | 1 ·30 | 5 58 59 ·1 | 1 ·3 | 18 ·0 | 1 ·7 |
| 13 10 39 ·57 | 0 ·29 | 1 ·30 | 5 59 27 ·6 | 1 ·1 | 18 ·1 | 1 ·7 |
| 13 10 46 ·27 | 0 ·26 | 1 ·30 | 5 59 52 ·0 | 0 ·9 | 18 ·1 | 1 ·7 |
| 13 10 52 ·28 | 0 ·24 | 1 ·31 | 6 0 12 ·1 | 0 ·8 | 18 ·2 | 1 ·7 |
| 13 10 57 ·60 | 0 ·21 | 1 ·31 | 6 0 28 ·0 | 0 ·6 | 18 ·2 | 1 ·7 |
| 13 11 2 ·22 | 0 ·18 | 1 ·32 | 6 0 39 ·7 | 0 ·4 | 18 ·3 | 1 ·7 |
| 13 11 6 ·15 | 0 ·15 | 1 ·32 | 6 0 47 ·1 | — 0 ·2 | 18 ·3 | 1 ·7 |
| 13 11 9 ·37 | 0 ·12 | 1 ·33 | 6 0 50 ·2 | 0 ·0 | 18 ·4 | 1 ·7 |
| 13 11 11 ·90 | 0 ·09 | 1 ·33 | 6 0 49 ·0 | + 0 ·1 | 18 ·5 | 1 ·7 |
| 13 11 13 ·72 | 0 ·06 | 1 ·33 | 6 0 43 ·6 | 0 ·3 | 18 ·5 | 1 ·7 |
| | + 0 ·03 | 1 ·34 | S. 6 0 33 ·9 | + 0 ·5 | 18 ·6 | 1 ·7 |

# FEBRUARY, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | R |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 13 11 14·14 | S. 6 0 41·0 | 0·6981074 | 16 24·5 | 189 9 28·6 | N. 1 18 44·2 | 0·7 |
| 2 | 13 11 15·05 | 6 0 30·0 | ·6968161 | 16 20·6 | 189 14 0·5 | 1 18 44·2 | ·7 |
| 3 | 13 11 15·25 | 6 0 14·7 | ·6955310 | 16 16·7 | 189 18 32·4 | 1 18 44·1 | ·7 |
| 4 | 13 11 14·74 | 5 59 55·1 | ·6942527 | 16 12·7 | 189 23 4·3 | 1 18 44·0 | ·7 |
| 5 | 13 11 13·51 | 5 59 31·2 | ·6929812 | 16 8·7 | 189 27 36·2 | 1 18 44·0 | ·7 |
| 6 | 13 11 11·58 | 5 59 3·0 | ·6917168 | 16 4·8 | 189 32 8·1 | 1 18 43·9 | ·7 |
| 7 | 13 11 8·94 | 5 58 30·6 | ·6904609 | 16 0·8 | 189 36 40·0 | 1 18 43·8 | ·7 |
| 8 | 13 11 5·59 | 5 57 53·9 | ·6892135 | 15 56·8 | 189 41 12·0 | 1 18 43·7 | ·7 |
| 9 | 13 11 1·52 | 5 57 12·9 | ·6879761 | 15 52·8 | 189 45 44·1 | 1 18 43·6 | ·7 |
| 10 | 13 10 56·75 | 5 56 27·7 | ·6867488 | 15 48·8 | 189 50 16·1 | 1 18 43·5 | ·7 |
| 11 | 13 10 51·27 | 5 55 38·3 | ·6855317 | 15 44·8 | 189 54 48·1 | 1 18 43·4 | ·7 |
| 12 | 13 10 45·08 | 5 54 44·6 | ·6843249 | 15 40·7 | 189 59 20·0 | 1 18 43·2 | ·7 |
| 13 | 13 10 38·19 | 5 53 46·7 | ·6831297 | 15 36·6 | 190 3 52·0 | 1 18 43·1 | ·7 |
| 14 | 13 10 30·60 | 5 52 44·6 | ·6819462 | 15 32·6 | 190 8 23·9 | 1 18 43·0 | ·7 |
| 15 | 13 10 22·31 | 5 51 38·3 | ·6807753 | 15 28·5 | 190 12 55·7 | 1 18 42·8 | ·7 |
| 16 | 13 10 13·34 | 5 50 28·0 | ·6796178 | 15 24·4 | 190 17 27·6 | 1 18 42·6 | ·7 |
| 17 | 13 10 3·69 | 5 49 13·6 | ·6784737 | 15 20·3 | 190 21 59·4 | 1 18 42·5 | ·7 |
| 18 | 13 9 53·36 | 5 47 55·3 | ·6773437 | 15 16·2 | 190 26 31·3 | 1 18 42·3 | ·7 |
| 19 | 13 9 42·36 | 5 46 33·0 | ·6762289 | 15 12·1 | 190 31 3·2 | 1 18 42·1 | ·7 |
| 20 | 13 9 30·69 | 5 45 6·8 | ·6751293 | 15 8·0 | 190 35 35·1 | 1 18 41·9 | ·7 |
| 21 | 13 9 18·37 | 5 43 36·7 | ·6740450 | 15 3·8 | 190 40 7·0 | 1 18 41·7 | ·7 |
| 22 | 13 9 5·40 | 5 42 2·8 | ·6729775 | 14 59·6 | 190 44 39·0 | 1 18 41·5 | ·7 |
| 23 | 13 8 51·79 | 5 40 25·2 | ·6719268 | 14 55·5 | 190 49 11·0 | 1 18 41·3 | ·7 |
| 24 | 13 8 37·55 | 5 38 43·9 | ·6708932 | 14 51·3 | 190 53 43·0 | 1 18 41·0 | ·7 |
| 25 | 13 8 22·68 | 5 36 58·9 | ·6698776 | 14 47·1 | 190 58 14·9 | 1 18 40·8 | ·7 |
| 26 | 13 8 7·19 | 5 35 10·3 | ·6688801 | 14 42·9 | 191 2 46·9 | 1 18 40·6 | ·7 |
| 27 | 13 7 51·09 | 5 33 18·2 | ·6679014 | 14 38·7 | 191 7 18·8 | 1 18 40·3 | ·7 |
| 28 | 13 7 34·40 | 5 31 22·6 | ·6669422 | 14 34·5 | 191 11 50·6 | 1 18 40·1 | ·7 |
| 29 | 13 7 17·11 | S. 5 29 23·6 | 0·6660025 | 14 30·3 | 191 16 22·4 | N. 1 18 39·8 | 0·7 |

# FEBRUARY, 1839.

At Transit over the Meridian of Greenwich.

| arent ght nsion. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 14 ·84 | + 0 ·03 | 1 ·34 | S. 6 0 33 ·9 | + 0 ·5 | 18 ·6 | 1 ·7 |
| 15 ·27 | 0 ·00 | 1 ·34 | 6 0 20 ·0 | 0 ·7 | 18 ·6 | 1 ·7 |
| 14 ·99 | — 0 ·03 | 1 ·35 | 6 0 1 ·8 | 0 ·8 | 18 ·7 | 1 ·7 |
| 14 ·00 | 0 ·06 | 1 ·35 | 5 59 39 ·4 | 1 ·0 | 18 ·7 | 1 ·7 |
| 12 ·29 | 0 ·09 | 1 ·36 | 5 59 12 ·7 | 1 ·2 | 18 ·8 | 1 ·7 |
| 9 ·89 | 0 ·11 | 1 ·36 | 5 58 41 ·7 | 1 ·4 | 18 ·8 | 1 ·7 |
| 6 ·78 | 0 ·14 | 1 ·36 | 5 58 6 ·6 | 1 ·6 | 18 ·9 | 1 ·8 |
| 2 ·97 | 0 ·17 | 1 ·37 | 5 57 27 ·2 | 1 ·7 | 19 ·0 | 1 ·8 |
| 58 ·44 | 0 ·20 | 1 ·37 | 5 56 43 ·5 | 1 ·9 | 19 ·0 | 1 ·8 |
| 53 ·22 | 0 ·23 | 1 ·37 | 5 55 55 ·6 | 2 ·1 | 19 ·1 | 1 ·8 |
| 47 ·29 | 0 ·26 | 1 ·38 | 5 55 3 ·6 | 2 ·3 | 19 ·1 | 1 ·8 |
| 40 ·66 | 0 ·29 | 1 ·38 | 5 54 7 ·3 | 2 ·4 | 19 ·2 | 1 ·8 |
| 33 ·33 | 0 ·32 | 1 ·39 | 5 53 6 ·8 | 2 ·6 | 19 ·2 | 1 ·8 |
| 25 ·31 | 0 ·35 | 1 ·39 | 5 52 2 ·2 | 2 ·8 | 19 ·2 | 1 ·8 |
| 16 ·60 | 0 ·38 | 1 ·39 | 5 50 53 ·5 | 2 ·9 | 19 ·3 | 1 ·8 |
| 7 ·22 | 0 ·40 | 1 ·40 | 5 49 40 ·8 | 3 ·1 | 19 ·3 | 1 ·8 |
| 57 ·17 | 0 ·43 | 1 ·40 | 5 48 24 ·1 | 3 ·3 | 19 ·4 | 1 ·8 |
| 46 ·44 | 0 ·46 | 1 ·41 | 5 47 3 ·5 | 3 ·4 | 19 ·4 | 1 ·8 |
| 35 ·05 | 0 ·49 | 1 ·41 | 5 45 38 ·9 | 3 ·6 | 19 ·5 | 1 ·8 |
| 23 ·00 | 0 ·52 | 1 ·42 | 5 44 10 ·5 | 3 ·7 | 19 ·5 | 1 ·8 |
| 10 ·31 | 0 ·54 | 1 ·42 | 5 42 38 ·3 | 3 ·9 | 19 ·6 | 1 ·8 |
| 56 ·97 | 0 ·57 | 1 ·42 | 5 41 2 ·3 | 4 ·0 | 19 ·6 | 1 ·8 |
| 43 ·00 | 0 ·59 | 1 ·43 | 5 39 22 ·7 | 4 ·2 | 19 ·7 | 1 ·8 |
| 28 ·41 | 0 ·62 | 1 ·43 | 5 37 39 ·4 | 4 ·4 | 19 ·7 | 1 ·8 |
| 13 ·21 | 0 ·65 | 1 ·43 | 5 35 52 ·5 | 4 ·5 | 19 ·8 | 1 ·8 |
| 57 ·39 | 0 ·67 | 1 ·44 | 5 34 2 ·0 | 4 ·7 | 19 ·8 | 1 ·8 |
| 40 ·97 | 0 ·70 | 1 ·44 | 5 32 8 ·1 | 4 ·8 | 19 ·9 | 1 ·8 |
| 23 ·97 | 0 ·72 | 1 ·44 | 5 30 10 ·7 | 5 ·0 | 19 ·9 | 1 ·9 |
| 6 ·38 | — 0 ·74 | 1 ·44 | S. 5 28 10 ·0 | + 5 ·1 | 20 ·0 | 1 ·9 |

# MARCH, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | |
|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ |
| 1 | 13 7 17·11 | S. 5 29 23·6 | 0·6660025 | 14 30·3 | 191 16 22·4 | N. 1 18 39·8 |
| 2 | 13 6 59·24 | 5 27 21·2 | ·6650829 | 14 26·1 | 191 20 54·2 | 1 18 39·5 |
| 3 | 13 6 40·80 | 5 25 15·5 | ·6641842 | 14 21·8 | 191 25 26·0 | 1 18 39·2 |
| 4 | 13 6 21·81 | 5 23 6·5 | ·6633065 | 14 17·6 | 191 29 57·8 | 1 18 38·9 |
| 5 | 13 6 2·28 | 5 20 54·4 | ·6624506 | 14 13·3 | 191 34 29·7 | 1 18 38·6 |
| 6 | 13 5 42·21 | 5 18 39·3 | ·6616171 | 14 9·0 | 191 39 1·6 | 1 18 38·3 |
| 7 | 13 5 21·61 | 5 16 21·2 | ·6608061 | 14 4·8 | 191 43 33·5 | 1 18 38·0 |
| 8 | 13 5 0·50 | 5 14 0·2 | ·6600180 | 14 0·5 | 191 48 5·5 | 1 18 37·7 |
| 9 | 13 4 38·89 | 5 11 36·3 | ·6592537 | 13 56·2 | 191 52 37·4 | 1 18 37·4 |
| 10 | 13 4 16·80 | 5 9 9·6 | ·6585132 | 13 51·9 | 191 57 9·4 | 1 18 37·0 |
| 11 | 13 3 54·25 | 5 6 40·3 | ·6577974 | 13 47·6 | 192 1 41·4 | 1 18 36·7 |
| 12 | 13 3 31·25 | 5 4 8·4 | ·6571068 | 13 43·2 | 192 6 13·3 | 1 18 36·3 |
| 13 | 13 3 7·79 | 5 1 34·0 | ·6564413 | 13 38·9 | 192 10 45·2 | 1 18 36·0 |
| 14 | 13 2 43·89 | 4 58 57·2 | ·6558017 | 13 34·6 | 192 15 17·0 | 1 18 35·6 |
| 15 | 13 2 19·59 | 4 56 18·2 | ·6551885 | 13 30·3 | 192 19 48·8 | 1 18 35·2 |
| 16 | 13 1 54·90 | 4 53 37·0 | ·6546016 | 13 25·9 | 192 24 20·6 | 1 18 34·8 |
| 17 | 13 1 29·84 | 4 50 53·8 | ·6540417 | 13 21·6 | 192 28 52·4 | 1 18 34·4 |
| 18 | 13 1 4·44 | 4 48 8·7 | ·6535092 | 13 17·2 | 192 33 24·2 | 1 18 34·0 |
| 19 | 13 0 38·71 | 4 45 21·8 | ·6530042 | 13 12·9 | 192 37 56·1 | 1 18 33·6 |
| 20 | 13 0 12·66 | 4 42 33·3 | ·6525272 | 13 8·5 | 192 42 28·1 | 1 18 33·2 |
| 21 | 12 59 46·31 | 4 39 43·3 | ·6520784 | 13 4·1 | 192 47 0·0 | 1 18 32·7 |
| 22 | 12 59 19·69 | 4 36 51·9 | ·6516579 | 12 59·7 | 192 51 32·0 | 1 18 32·3 |
| 23 | 12 58 52·81 | 4 33 59·2 | ·6512658 | 12 55·4 | 192 56 4·0 | 1 18 31·8 |
| 24 | 12 58 25·69 | 4 31 5·3 | ·6509025 | 12 51·0 | 193 0 36·0 | 1 18 31·4 |
| 25 | 12 57 58·35 | 4 28 10·2 | ·6505679 | 12 46·6 | 193 5 7·9 | 1 18 30·9 |
| 26 | 12 57 30·80 | 4 25 14·2 | ·6502627 | 12 42·2 | 193 9 39·8 | 1 18 30·4 |
| 27 | 12 57 3·07 | 4 22 17·4 | ·6499867 | 12 37·8 | 193 14 11·6 | 1 18 30·0 |
| 28 | 12 56 35·17 | 4 19 19·8 | ·6497398 | 12 33·4 | 193 18 43·5 | 1 18 29·5 |
| 29 | 12 56 7·13 | 4 16 21·7 | ·6495227 | 12 29·0 | 193 23 15·3 | 1 18 29·0 |
| 30 | 12 55 38·96 | 4 13 23·3 | ·6493351 | 12 24·6 | 193 27 47·1 | 1 18 28·5 |
| 31 | 12 55 10·69 | 4 10 24·4 | ·6491770 | 12 20·2 | 193 32 19·0 | 1 18 27·9 |
| 32 | 12 54 42·33 | S. 4 7 25·2 | 0·6490488 | 12 15·8 | 193 36 50·8 | N. 1 18 27·4 |

# MARCH, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 3 7 6·38 | — 0·74 | 1·44 | S. 5 28 10·0 | + 5·1 | 20·0 | 1·9 |
| 3 6 48·22 | 0·77 | 1·45 | 5 26 6·0 | 5·2 | 20·0 | 1·9 |
| 3 6 29·50 | 0·79 | 1·45 | 5 23 58·7 | 5·4 | 20·0 | 1·9 |
| 3 6 10·25 | 0·82 | 1·45 | 5 21 48·2 | 5·5 | 20·1 | 1·9 |
| 3 5 50·46 | 0·84 | 1·46 | 5 19 34·7 | 5·6 | 20·1 | 1·9 |
| 3 5 30·14 | 0·86 | 1·46 | 5 17 18·3 | 5·8 | 20·2 | 1·9 |
| 3 5 9·29 | 0·88 | 1·46 | 5 14 58·9 | 5·9 | 20·2 | 1·9 |
| 3 4 47·94 | 0·90 | 1·47 | 5 12 36·7 | 6·0 | 20·2 | 1·9 |
| 3 4 26·12 | 0·92 | 1·47 | 5 10 11·6 | 6·1 | 20·3 | 1·9 |
| 3 4 3·83 | 0·94 | 1·47 | 5 7 43·7 | 6·2 | 20·3 | 1·9 |
| 3 3 41·08 | 0·96 | 1·48 | 5 5 13·3 | 6·3 | 20·3 | 1·9 |
| 3 3 17·89 | 0·98 | 1·48 | 5 2 40·4 | 6·4 | 20·4 | 1·9 |
| 3 2 54·25 | 0·99 | 1·48 | 5 0 5·1 | 6·5 | 20·4 | 1·9 |
| 3 2 30·19 | 1·01 | 1·48 | 4 57 27·5 | 6·6 | 20·4 | 1·9 |
| 3 2 5·74 | 1·02 | 1·48 | 4 54 47·8 | 6·7 | 20·5 | 1·9 |
| 3 1 40·91 | 1·04 | 1·48 | 4 52 6·0 | 6·8 | 20·5 | 1·9 |
| 3 1 15·73 | 1·06 | 1·49 | 4 49 22·2 | 6·9 | 20·5 | 1·9 |
| 3 0 50·23 | 1·07 | 1·49 | 4 46 36·6 | 6·9 | 20·5 | 1·9 |
| 3 0 24·41 | 1·08 | 1·49 | 4 43 49·3 | 7·0 | 20·6 | 1·9 |
| 2 59 58·27 | 1·10 | 1·49 | 4 41 0·4 | 7·1 | 20·6 | 1·9 |
| 2 59 31·84 | 1·11 | 1·49 | 4 38 10·1 | 7·1 | 20·6 | 1·9 |
| 2 59 5·16 | 1·12 | 1·49 | 4 35 18·5 | 7·2 | 20·6 | 1·9 |
| 2 58 38·23 | 1·13 | 1·50 | 4 32 25·7 | 7·2 | 20·6 | 1·9 |
| 2 58 11·07 | 1·14 | 1·50 | 4 29 31·7 | 7·3 | 20·7 | 1·9 |
| 2 57 43·70 | 1·14 | 1·50 | 4 26 36·6 | 7·3 | 20·7 | 1·9 |
| 2 57 16·14 | 1·15 | 1·50 | 4 23 40·7 | 7·3 | 20·7 | 1·9 |
| 2 56 48·41 | 1·16 | 1·50 | 4 20 44·0 | 7·4 | 20·7 | 1·9 |
| 2 56 20·52 | 1·16 | 1·50 | 4 17 46·7 | 7·4 | 20·7 | 1·9 |
| 2 55 52·50 | 1·17 | 1·50 | 4 14 28·9 | 7·4 | 20·7 | 1·9 |
| 2 55 24·36 | 1·17 | 1·50 | 4 11 50·8 | 7·4 | 20·7 | 1·9 |
| 2 54 56·12 | 1·18 | 1·50 | 4 8 52·3 | 7·4 | 20·7 | 1·9 |
| 2 54 27·80 | — 1·18 | 1·50 | S. 4 5 53·6 | + 7·4 | 20·7 | 1·9 |

# APRIL, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | |
|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ |
| 1 | 12 54 42·33 | S. 4 7 25·2 | 0·6490488 | 12 15·8 | 193 36 50·8 | N. 1 18 27·4 |
| 2 | 12 54 13·90 | 4 4 26·0 | ·6489504 | 12 11·4 | 193 41 22·7 | 1 18 26·9 |
| 3 | 12 53 45·43 | 4 1 26·7 | ·6488819 | 12 7·0 | 193 45 54·7 | 1 18 26·3 |
| 4 | 12 53 16·93 | 3 58 27·6 | ·6488432 | 12 2·6 | 193 50 26·7 | 1 18 25·8 |
| 5 | 12 52 48·42 | 3 55 28·7 | ·6488344 | 11 58·2 | 193 54 58·7 | 1 18 25·2 |
| 6 | 12 52 19·91 | 3 52 30·2 | ·6488555 | 11 53·8 | 193 59 30·7 | 1 18 24·7 |
| 7 | 12 51 51·43 | 3 49 32·3 | ·6489067 | 11 49·4 | 194 4 2·7 | 1 18 24·1 |
| 8 | 12 51 23·01 | 3 46 35·1 | ·6489877 | 11 45·0 | 194 8 34·7 | 1 18 23·5 |
| 9 | 12 50 54·65 | 3 43 38·6 | ·6490986 | 11 40·6 | 194 13 6·6 | 1 18 22·9 |
| 10 | 12 50 26·38 | 3 40 42·9 | ·6492394 | 11 36·2 | 194 17 38·5 | 1 18 22·3 |
| 11 | 12 49 58·22 | 3 37 48·2 | ·6494098 | 11 31·8 | 194 22 10·4 | 1 18 21·7 |
| 12 | 12 49 30·19 | 3 34 54·6 | ·6496098 | 11 27·4 | 194 26 42·2 | 1 18 21·1 |
| 13 | 12 49 2·31 | 3 32 2·4 | ·6498393 | 11 23·0 | 194 31 14·1 | 1 18 20·5 |
| 14 | 12 48 34·60 | 3 29 11·6 | ·6500979 | 11 18·6 | 194 35 46·0 | 1 18 19·8 |
| 15 | 12 48 7·08 | 3 26 22·4 | ·6503855 | 11 14·2 | 194 40 17·9 | 1 18 19·2 |
| 16 | 12 47 39·78 | 3 23 34·8 | ·6507020 | 11 9·8 | 194 44 49·9 | 1 18 18·5 |
| 17 | 12 47 12·72 | 3 20 49·0 | ·6510469 | 11 5·4 | 194 49 21·9 | 1 18 17·9 |
| 18 | 12 46 45·91 | 3 18 5·1 | ·6514202 | 11 1·1 | 194 53 53·9 | 1 18 17·2 |
| 19 | 12 46 19·36 | 3 15 23·3 | ·6518216 | 10 56·7 | 194 58 26·0 | 1 18 16·6 |
| 20 | 12 45 53·09 | 3 12 43·7 | ·6522505 | 10 52·4 | 195 2 58·0 | 1 18 15·9 |
| 21 | 12 45 27·13 | 3 10 6·3 | ·6527069 | 10 48·0 | 195 7 30·0 | 1 18 15·2 |
| 22 | 12 45 1·49 | 3 7 31·2 | ·6531902 | 10 43·7 | 195 12 2·0 | 1 18 14·5 |
| 23 | 12 44 36·18 | 3 4 58·5 | ·6536999 | 10 39·3 | 195 16 33·9 | 1 18 13·8 |
| 24 | 12 44 11·22 | 3 2 28·3 | ·6542359 | 10 35·0 | 195 21 5·8 | 1 18 13·1 |
| 25 | 12 43 46·63 | 3 0 0·8 | ·6547979 | 10 30·6 | 195 25 37·8 | 1 18 12·4 |
| 26 | 12 43 22·42 | 2 57 36·1 | ·6553851 | 10 26·3 | 195 30 9·7 | 1 18 11·6 |
| 27 | 12 42 58·60 | 2 55 14·1 | ·6559976 | 10 22·0 | 195 34 41·6 | 1 18 10·9 |
| 28 | 12 42 35·19 | 2 52 54·9 | ·6566348 | 10 17·6 | 195 39 13·5 | 1 18 10·2 |
| 29 | 12 42 12·21 | 2 50 38·7 | ·6572961 | 10 13·3 | 195 43 45·5 | 1 18 9·4 |
| 30 | 12 41 49·67 | 2 48 25·6 | ·6579816 | 10 9·0 | 195 48 17·5 | 1 18 8·7 |
| | 12 41 27·58 | S. 2 46 15·6 | 0·6586907 | 10 4·7 | 195 52 49·6 | N. 1 18 7·9 |

# APRIL, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 12 54 27 ·80 | — 1 ·18 | 1 ·50 | S. 4 5 53 ·6 | + 7 ·4 | 20 ·7 | 1 ·9 |
| 12 53 59 ·43 | 1 ·18 | 1 ·50 | 4 2 54 ·9 | 7 ·4 | 20 ·7 | 1 ·9 |
| 12 53 31 ·04 | 1 ·18 | 1 ·49 | 3 59 56 ·3 | 7 ·4 | 20 ·7 | 1 ·9 |
| 12 53 2 ·62 | 1 ·18 | 1 ·49 | 3 56 57 ·9 | 7 ·4 | 20 ·7 | 1 ·9 |
| 12 52 34 ·20 | 1 ·18 | 1 ·49 | 3 53 59 ·7 | 7 ·4 | 20 ·7 | 1 ·9 |
| 12 52 5 ·79 | 1 ·18 | 1 ·49 | 3 51 1 ·9 | 7 ·4 | 20 ·7 | 1 ·9 |
| 12 51 37 ·42 | 1 ·18 | 1 ·49 | 3 48 4 ·8 | 7 ·4 | 20 ·7 | 1 ·9 |
| 12 51 9 ·12 | 1 ·18 | 1 ·49 | 3 45 8 ·5 | 7 ·3 | 20 ·7 | 1 ·9 |
| 12 50 40 ·89 | 1 ·17 | 1 ·49 | 3 42 13 ·0 | 7 ·3 | 20 ·7 | 1 ·9 |
| 12 50 12 ·76 | 1 ·17 | 1 ·49 | 3 39 18 ·4 | 7 ·3 | 20 ·7 | 1 ·9 |
| 12 49 44 ·74 | 1 ·16 | 1 ·49 | 3 36 24 ·8 | 7 ·2 | 20 ·7 | 1 ·9 |
| 12 49 16 ·86 | 1 ·16 | 1 ·49 | 3 33 32 ·4 | 7 ·2 | 20 ·7 | 1 ·9 |
| 12 48 49 ·14 | 1 ·15 | 1 ·49 | 3 30 41 ·3 | 7 ·1 | 20 ·7 | 1 ·9 |
| 12 48 21 ·60 | 1 ·14 | 1 ·49 | 3 27 51 ·7 | 7 ·0 | 20 ·7 | 1 ·9 |
| 12 47 54 ·27 | 1 ·13 | 1 ·49 | 3 25 3 ·7 | 7 ·0 | 20 ·7 | 1 ·9 |
| 12 47 27 ·16 | 1 ·12 | 1 ·49 | 3 22 17 ·4 | 6 ·9 | 20 ·7 | 1 ·9 |
| 12 47 0 ·30 | 1 ·11 | 1 ·49 | 3 19 32 ·9 | 6 ·8 | 20 ·6 | 1 ·9 |
| 12 46 33 ·69 | 1 ·10 | 1 ·49 | 3 16 50 ·5 | 6 ·7 | 20 ·6 | 1 ·9 |
| 12 46 7 ·35 | 1 ·09 | 1 ·48 | 3 14 10 ·2 | 6 ·6 | 20 ·6 | 1 ·9 |
| 12 45 41 ·30 | 1 ·08 | 1 ·48 | 3 11 32 ·1 | 6 ·5 | 20 ·6 | 1 ·9 |
| 12 45 15 ·55 | 1 ·07 | 1 ·48 | 3 8 56 ·2 | 6 ·4 | 20 ·6 | 1 ·9 |
| 12 44 50 ·13 | 1 ·05 | 1 ·48 | 3 6 22 ·7 | 6 ·3 | 20 ·5 | 1 ·9 |
| 12 44 25 ·05 | 1 ·04 | 1 ·48 | 3 3 51 ·6 | 6 ·2 | 20 ·5 | 1 ·9 |
| 12 44 0 ·33 | 1 ·02 | 1 ·47 | 3 1 23 ·0 | 6 ·1 | 20 ·5 | 1 ·9 |
| 12 43 35 ·98 | 1 ·01 | 1 ·47 | 2 58 57 ·1 | 6 ·0 | 20 ·4 | 1 ·9 |
| 12 43 12 ·01 | 0 ·99 | 1 ·47 | 2 56 34 ·0 | 5 ·9 | 20 ·4 | 1 ·9 |
| 12 42 48 ·44 | 0 ·97 | 1 ·47 | 2 54 13 ·6 | 5 ·8 | 20 ·4 | 1 ·9 |
| 12 42 25 ·28 | 0 ·96 | 1 ·46 | 2 51 56 ·1 | 5 ·7 | 20 ·4 | 1 ·9 |
| 12 42 2 ·55 | 0 ·94 | 1 ·46 | 2 49 41 ·6 | 5 ·5 | 20 ·3 | 1 ·9 |
| 12 41 40 ·27 | 0 ·92 | 1 ·46 | 2 47 30 ·2 | 5 ·4 | 20 ·3 | 1 ·9 |
| 12 41 18 ·44 | — 0 ·90 | 1 ·46 | S. 2 45 21 ·9 | + 5 ·3 | 20 ·3 | 1 ·9 |

# MAY, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | R |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 12 41 27·58 | S. 2 46 15·6 | 0·6586907 | 10 4·7 | 195 52 49·6 | N. 1 18 7·9 | 0·7 |
| 2 | 12 41 5·95 | 2 44 8·9 | ·6594227 | 10 0·4 | 195 57 21·7 | 1 18 7·1 | ·7 |
| 3 | 12 40 44·79 | 2 42 5·4 | ·6601777 | 9 56·2 | 196 1 53·8 | 1 18 6·4 | ·7 |
| 4 | 12 40 24·12 | 2 40 5·3 | ·6609549 | 9 51·9 | 196 6 25·9 | 1 18 5·6 | ·7 |
| 5 | 12 40 3·95 | 2 38 8·7 | ·6617537 | 9 47·6 | 196 10 58·0 | 1 18 4·8 | ·7 |
| 6 | 12 39 44·28 | 2 36 15·5 | ·6625741 | 9 43·4 | 196 15 30·1 | 1 18 4·0 | ·7 |
| 7 | 12 39 25·13 | 2 34 25·8 | ·6634157 | 9 39·1 | 196 20 2·1 | 1 18 3·1 | ·7 |
| 8 | 12 39 6·50 | 2 32 39·8 | ·6642776 | 9 34·9 | 196 24 34·1 | 1 18 2·3 | ·7 |
| 9 | 12 38 48·42 | 2 30 57·4 | ·6651598 | 9 30·7 | 196 29 6·0 | 1 18 1·5 | ·7 |
| 10 | 12 38 30·90 | 2 29 18·8 | ·6660616 | 9 26·5 | 196 33 38·0 | 1 18 0·6 | ·7 |
| 11 | 12 38 13·94 | 2 27 44·1 | ·6669822 | 9 22·3 | 196 38 9·9 | 1 17 59·8 | ·7 |
| 12 | 12 37 57·55 | 2 26 13·2 | ·6679216 | 9 18·0 | 196 42 41·9 | 1 17 59·0 | ·7 |
| 13 | 12 37 41·75 | 2 24 46·3 | ·6688792 | 9 13·8 | 196 47 14·0 | 1 17 58·1 | ·7 |
| 14 | 12 37 26·55 | 2 23 23·4 | ·6698540 | 9 9·7 | 196 51 46·1 | 1 17 57·2 | ·7 |
| 15 | 12 37 11·95 | 2 22 4·5 | ·6708461 | 9 5·5 | 196 56 18·3 | 1 17 56·3 | ·7 |
| 16 | 12 36 57·96 | 2 20 49·7 | ·6718546 | 9 1·4 | 197 0 50·5 | 1 17 55·4 | ·7 |
| 17 | 12 36 44·58 | 2 19 39·1 | ·6728788 | 8 57·2 | 197 5 22·7 | 1 17 54·5 | ·7 |
| 18 | 12 36 31·82 | 2 18 32·6 | ·6739186 | 8 53·1 | 197 9 54·8 | 1 17 53·6 | ·7 |
| 19 | 12 36 19·68 | 2 17 30·3 | ·6749735 | 8 48·9 | 197 14 26·9 | 1 17 52·7 | ·7 |
| 20 | 12 36 8·17 | 2 16 32·1 | ·6760425 | 8 44·8 | 197 18 59·0 | 1 17 51·8 | ·7 |
| 21 | 12 35 57·30 | 2 15 38·1 | ·6771255 | 8 40·7 | 197 23 31·0 | 1 17 50·9 | ·7 |
| 22 | 12 35 47·06 | 2 14 48·4 | ·6782216 | 8 36·6 | 197 28 3·0 | 1 17 50·0 | ·7 |
| 23 | 12 35 37·47 | 2 14 2·9 | ·6793303 | 8 32·5 | 197 32 35·1 | 1 17 49·0 | ·7 |
| 24 | 12 35 28·52 | 2 13 21·6 | ·6804514 | 8 28·4 | 197 37 7·1 | 1 17 48·1 | ·7 |
| 25 | 12 35 20·22 | 2 12 44·6 | ·6815843 | 8 24·4 | 197 41 39·2 | 1 17 47·1 | ·7 |
| 26 | 12 35 12·57 | 2 12 11·9 | ·6827282 | 8 20·3 | 197 46 11·3 | 1 17 46·1 | ·7 |
| 27 | 12 35 5·57 | 2 11 43·6 | ·6838831 | 8 16·3 | 197 50 43·4 | 1 17 45·2 | ·7 |
| 28 | 12 34 59·23 | 2 11 19·6 | ·6850483 | 8 12·3 | 197 55 15·6 | 1 17 44·2 | ·7 |
| 29 | 12 34 53·55 | 2 10 59·8 | ·6862232 | 8 8·2 | 197 59 47·8 | 1 17 43·2 | ·7 |
| 30 | 12 34 48·53 | 2 10 44·3 | ·6874077 | 8 4·2 | 198 4 20·1 | 1 17 42·2 | ·7 |
| 31 | 12 34 44·16 | 2 10 33·1 | ·6886010 | 8 0·2 | 198 8 52·3 | 1 17 41·2 | ·7 |
| | 12 34 40·45 | S. 2 10 26·2 | 0·6898026 | 7 56·2 | 198 13 24·5 | N. 1 17 40·2 | 0·7 |

# MAY, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 12 41 18 ·44 | — 0 ·90 | 1 ·46 | S. 2 45 21 ·9 | + 5 ·3 | 20 ·3 | 1 ·9 |
| 12 40 57 ·07 | 0 ·88 | 1 ·46 | 2 43 17 ·0 | 5 ·1 | 20 ·2 | 1 ·9 |
| 12 40 36 ·17 | 0 ·86 | 1 ·45 | 2 41 15 ·3 | 5 ·0 | 20 ·2 | 1 ·9 |
| 12 40 15 ·76 | 0 ·84 | 1 ·45 | 2 39 16 ·9 | 4 ·9 | 20 ·2 | 1 ·9 |
| 12 39 55 ·86 | 0 ·82 | 1 ·45 | 2 37 22 ·1 | 4 ·7 | 20 ·1 | 1 ·9 |
| 12 39 36 ·46 | 0 ·80 | 1 ·45 | 2 35 30 ·7 | 4 ·6 | 20 ·1 | 1 ·9 |
| 12 39 17 ·58 | 0 ·78 | 1 ·45 | 2 33 42 ·7 | 4 ·4 | 20 ·0 | 1 ·9 |
| 12 38 59 ·22 | 0 ·75 | 1 ·44 | 2 31 58 ·4 | 4 ·3 | 20 ·0 | 1 ·9 |
| 12 38 41 ·41 | 0 ·73 | 1 ·44 | 2 30 17 ·8 | 4 ·1 | 20 ·0 | 1 ·9 |
| 12 38 24 ·16 | 0 ·71 | 1 ·44 | 2 28 41 ·0 | 4 ·0 | 19 ·9 | 1 ·8 |
| 12 38 7 ·47 | 0 ·68 | 1 ·43 | 2 27 8 ·1 | 3 ·8 | 19 ·9 | 1 ·8 |
| 12 37 51 ·36 | 0 ·66 | 1 ·43 | 2 25 39 ·0 | 3 ·6 | 19 ·8 | 1 ·8 |
| 12 37 35 ·83 | 0 ·63 | 1 ·43 | 2 24 13 ·9 | 3 ·5 | 19 ·8 | 1 ·8 |
| 12 37 20 ·90 | 0 ·61 | 1 ·42 | 2 22 52 ·8 | 3 ·3 | 19 ·7 | 1 ·8 |
| 12 37 6 ·58 | 0 ·58 | 1 ·42 | 2 21 35 ·7 | 3 ·1 | 19 ·7 | 1 ·8 |
| 12 36 52 ·86 | 0 ·56 | 1 ·42 | 2 20 22 ·7 | 3 ·0 | 19 ·6 | 1 ·8 |
| 12 36 39 ·75 | 0 ·53 | 1 ·41 | 2 19 13 ·8 | 2 ·8 | 19 ·6 | 1 ·8 |
| 12 36 27 ·26 | 0 ·51 | 1 ·41 | 2 18 9 ·0 | 2 ·6 | 19 ·6 | 1 ·8 |
| 12 36 15 ·39 | 0 ·48 | 1 ·41 | 2 17 8 ·4 | 2 ·4 | 19 ·5 | 1 ·8 |
| 12 36 4 ·14 | 0 ·46 | 1 ·40 | 2 16 11 ·9 | 2 ·3 | 19 ·5 | 1 ·8 |
| 12 35 53 ·53 | 0 ·43 | 1 ·40 | 2 15 19 ·6 | 2 ·1 | 19 ·4 | 1 ·8 |
| 12 35 43 ·55 | 0 ·41 | 1 ·39 | 2 14 31 ·6 | 1 ·9 | 19 ·4 | 1 ·8 |
| 12 35 34 ·22 | 0 ·38 | 1 ·39 | 2 13 47 ·7 | 1 ·7 | 19 ·3 | 1 ·8 |
| 12 35 25 ·52 | 0 ·35 | 1 ·39 | 2 13 8 ·0 | 1 ·6 | 19 ·3 | 1 ·8 |
| 12 35 17 ·47 | 0 ·32 | 1 ·38 | 2 12 32 ·6 | 1 ·4 | 19 ·2 | 1 ·8 |
| 12 35 10 ·07 | 0 ·30 | 1 ·38 | 2 12 1 ·5 | 1 ·2 | 19 ·2 | 1 ·8 |
| 12 35 3 ·32 | 0 ·27 | 1 ·38 | 2 11 34 ·8 | 1 ·0 | 19 ·1 | 1 ·8 |
| 12 34 57 ·22 | 0 ·24 | 1 ·37 | 2 11 12 ·3 | 0 ·9 | 19 ·1 | 1 ·8 |
| 12 34 51 ·78 | 0 ·21 | 1 ·37 | 2 10 54 ·0 | 0 ·7 | 19 ·0 | 1 ·8 |
| 12 34 46 ·99 | 0 ·19 | 1 ·37 | 2 10 40 ·0 | 0 ·5 | 19 ·0 | 1 ·8 |
| 12 34 42 ·85 | 0 ·16 | 1 ·36 | 2 10 30 ·3 | 0 ·3 | 18 ·9 | 1 ·8 |
| 12 34 39 ·37 | — 0 ·13 | 1 ·36 | S. 2 10 24 ·9 | + 0 ·1 | 18 ·9 | 1 ·8 |

# JUNE, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | R |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 12 34 40·45 | S. 2 10 26·2 | 0·6898026 | 7 56·2 | 198 13 24·5 | N. 1 17 40·2 | 0·7 |
| 2 | 12 34 37·39 | 2 10 23·6 | ·6910124 | 7 52·2 | 198 17 56·7 | 1 17 39·1 | ·7 |
| 3 | 12 34 34·99 | 2 10 25·3 | ·6922299 | 7 48·3 | 198 22 28·8 | 1 17 38·1 | ·7 |
| 4 | 12 34 33·26 | 2 10 31·2 | ·6934544 | 7 44·3 | 198 27 1·0 | 1 17 37·0 | ·7 |
| 5 | 12 34 32·18 | 2 10 41·4 | ·6946858 | 7 40·4 | 198 31 33·1 | 1 17 35·9 | ·7 |
| 6 | 12 34 31·77 | 2 10 55·9 | ·6959237 | 7 36·4 | 198 36 5·2 | 1 17 34·9 | ·7 |
| 7 | 12 34 32·02 | 2 11 14·6 | ·6971671 | 7 32·5 | 198 40 37·3 | 1 17 33·9 | ·7 |
| 8 | 12 34 32·92 | 2 11 37·6 | ·6984161 | 7 28·6 | 198 45 9·4 | 1 17 32·8 | ·7 |
| 9 | 12 34 34·49 | 2 12 4·9 | ·6996700 | 7 24·7 | 198 49 41·6 | 1 17 31·7 | ·7 |
| 10 | 12 34 36·73 | 2 12 36·6 | ·7009283 | 7 20·8 | 198 54 13·9 | 1 17 30·6 | ·7 |
| 11 | 12 34 39·64 | 2 13 12·5 | ·7021908 | 7 16·9 | 198 58 46·2 | 1 17 29·6 | ·7 |
| 12 | 12 34 43·21 | 2 13 52·7 | ·7034570 | 7 13·1 | 199 3 18·5 | 1 17 28·4 | ·7 |
| 13 | 12 34 47·43 | 2 14 37·1 | ·7047262 | 7 9·2 | 199 7 50·8 | 1 17 27·3 | ·7 |
| 14 | 12 34 52·30 | 2 15 25·7 | ·7059984 | 7 5·3 | 199 12 23·1 | 1 17 26·2 | ·7 |
| 15 | 12 34 57·82 | 2 16 18·4 | ·7072728 | 7 1·5 | 199 16 55·3 | 1 17 25·1 | ·7 |
| 16 | 12 35 3·99 | 2 17 15·3 | ·7085490 | 6 57·7 | 199 21 27·6 | 1 17 23·9 | ·7 |
| 17 | 12 35 10·80 | 2 18 16·2 | ·7098268 | 6 53·9 | 199 25 59·8 | 1 17 22·8 | ·7 |
| 18 | 12 35 18·25 | 2 19 21·2 | ·7111058 | 6 50·1 | 199 30 31·9 | 1 17 21·6 | ·7 |
| 19 | 12 35 26·34 | 2 20 30·3 | ·7123853 | 6 46·3 | 199 35 4·1 | 1 17 20·5 | ·7 |
| 20 | 12 35 35·07 | 2 21 43·4 | ·7136654 | 6 42·5 | 199 39 36·3 | 1 17 19·3 | ·7 |
| 21 | 12 35 44·43 | 2 23 0·5 | ·7149453 | 6 38·7 | 199 44 8·5 | 1 17 18·1 | ·7 |
| 22 | 12 35 54·41 | 2 24 21·6 | ·7162247 | 6 34·9 | 199 48 40·7 | 1 17 16·9 | ·7 |
| 23 | 12 36 5·02 | 2 25 46·6 | ·7175035 | 6 31·2 | 199 53 13·0 | 1 17 15·7 | ·7 |
| 24 | 12 36 16·24 | 2 27 15·4 | ·7187813 | 6 27·4 | 199 57 45·3 | 1 17 14·5 | ·7 |
| 25 | 12 36 28·08 | 2 28 48·1 | ·7200577 | 6 23·7 | 200 2 17·6 | 1 17 13·3 | ·7 |
| 26 | 12 36 40·52 | 2 30 24·6 | ·7213326 | 6 20·0 | 200 6 50·0 | 1 17 12·1 | ·7 |
| 27 | 12 36 53·57 | 2 32 4·9 | ·7226056 | 6 16·3 | 200 11 22·4 | 1 17 10·8 | ·7 |
| 28 | 12 37 7·21 | 2 33 48·9 | ·7238762 | 6 12·6 | 200 15 54·8 | 1 17 9·6 | ·7 |
| 29 | 12 37 21·45 | 2 35 36·6 | ·7251443 | 6 8·9 | 200 20 27·1 | 1 17 8·4 | ·7 |
| 30 | 12 37 36·27 | 2 37 28·0 | ·7264098 | 6 5·2 | 200 24 59·4 | 1 17 7·1 | ·7 |
| 31 | 12 37 51·67 | S. 2 39 23·0 | 0·7276721 | 6 1·5 | 200 29 31·7 | N. 1 17 5·8 | 0·7 |

# JUNE, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 34 39 ·37 | — 0 ·13 | 1 ·36 | S. 2 10 24 ·9 | + 0 ·1 | 18 ·9 | 1 ·8 |
| 34 36 ·53 | 0 ·10 | 1 ·35 | 2 10 23 ·7 | 0 ·0 | 18 ·8 | 1 ·7 |
| 34 34 ·35 | 0 ·08 | 1 ·35 | 2 10 26 ·8 | — 0 ·2 | 18 ·8 | 1 ·7 |
| 34 32 ·84 | 0 ·05 | 1 ·35 | 2 10 34 ·0 | 0 ·4 | 18 ·7 | 1 ·7 |
| 34 31 ·98 | — 0 ·02 | 1 ·34 | 2 10 45 ·5 | 0 ·6 | 18 ·6 | 1 ·7 |
| 34 31 ·78 | + 0 ·01 | 1 ·34 | 2 11 1 ·3 | 0 ·7 | 18 ·6 | 1 ·7 |
| 34 32 ·23 | 0 ·04 | 1 ·34 | 2 11 21 ·3 | 0 ·9 | 18 ·5 | 1 ·7 |
| 34 33 ·34 | 0 ·06 | 1 ·33 | 2 11 45 ·6 | 1 ·1 | 18 ·5 | 1 ·7 |
| 34 35 ·11 | 0 ·09 | 1 ·33 | 2 12 14 ·2 | 1 ·3 | 18 ·4 | 1 ·7 |
| 34 37 ·55 | 0 ·12 | 1 ·33 | 2 12 47 ·1 | 1 ·5 | 18 ·4 | 1 ·7 |
| 34 40 ·65 | 0 ·14 | 1 ·32 | 2 13 24 ·3 | 1 ·6 | 18 ·3 | 1 ·7 |
| 34 44 ·40 | 0 ·17 | 1 ·32 | 2 14 5 ·7 | 1 ·8 | 18 ·3 | 1 ·7 |
| 34 48 ·80 | 0 ·20 | 1 ·31 | 2 14 51 ·2 | 2 ·0 | 18 ·2 | 1 ·7 |
| 34 53 ·85 | 0 ·22 | 1 ·31 | 2 15 40 ·9 | 2 ·2 | 18 ·2 | 1 ·7 |
| 34 59 ·55 | 0 ·25 | 1 ·30 | 2 16 34 ·7 | 2 ·3 | 18 ·1 | 1 ·7 |
| 35 5 ·89 | 0 ·28 | 1 ·30 | 2 17 32 ·6 | 2 ·5 | 18 ·1 | 1 ·7 |
| 35 12 ·87 | 0 ·30 | 1 ·30 | 2 18 34 ·5 | 2 ·7 | 18 ·0 | 1 ·7 |
| 35 20 ·49 | 0 ·33 | 1 ·29 | 2 19 40 ·5 | 2 ·8 | 18 ·0 | 1 ·7 |
| 35 28 ·74 | 0 ·36 | 1 ·29 | 2 20 50 ·5 | 3 ·0 | 17 ·9 | 1 ·7 |
| 35 37 ·63 | 0 ·38 | 1 ·29 | 2 22 4 ·5 | 3 ·2 | 17 ·8 | 1 ·7 |
| 35 47 ·14 | 0 ·41 | 1 ·28 | 2 23 22 ·5 | 3 ·3 | 17 ·8 | 1 ·7 |
| 35 57 ·27 | 0 ·43 | 1 ·28 | 2 24 44 ·5 | 3 ·5 | 17 ·7 | 1 ·6 |
| 36 8 ·01 | 0 ·46 | 1 ·27 | 2 26 10 ·3 | 3 ·7 | 17 ·7 | 1 ·6 |
| 36 19 ·36 | 0 ·49 | 1 ·27 | 2 27 39 ·9 | 3 ·8 | 17 ·6 | 1 ·6 |
| 36 31 ·33 | 0 ·51 | 1 ·26 | 2 29 13 ·4 | 4 ·0 | 17 ·6 | 1 ·6 |
| 36 43 ·90 | 0 ·54 | 1 ·26 | 2 30 50 ·7 | 4 ·1 | 17 ·5 | 1 ·6 |
| 36 57 ·07 | 0 ·56 | 1 ·26 | 2 32 31 ·7 | 4 ·3 | 17 ·5 | 1 ·6 |
| 37 10 ·84 | 0 ·59 | 1 ·25 | 2 34 16 ·4 | 4 ·4 | 17 ·4 | 1 ·6 |
| 37 25 ·19 | 0 ·61 | 1 ·25 | 2 36 4 ·8 | 4 ·6 | 17 ·4 | 1 ·6 |
| 37 40 ·12 | 0 ·63 | 1 ·25 | 2 37 56 ·9 | 4 ·7 | 17 ·3 | 1 ·6 |
| 37 55 ·63 | + 0 ·66 | 1 ·25 | S. 2 39 52 ·5 | — 4 ·9 | 17 ·3 | 1 ·6 |

# JULY, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | R |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 12 37 51·67 | S. 2 39 23·0 | 0·7276721 | 6 1·5 | 200 29 31·7 | N. 1 17 5·8 | 0· |
| 2 | 12 38 7·66 | 2 41 21·6 | ·7289313 | 5 57·9 | 200 34 4·0 | 1 17 4·6 | · |
| 3 | 12 38 24·22 | 2 43 23·9 | ·7301868 | 5 54·2 | 200 38 36·2 | 1 17 3·3 | · |
| 4 | 12 38 41·35 | 2 45 29·7 | ·7314384 | 5 50·6 | 200 43 8·4 | 1 17 2·0 | · |
| 5 | 12 38 59·06 | 2 47 38·9 | ·7326860 | 5 46·9 | 200 47 40·7 | 1 17 0·7 | · |
| 6 | 12 39 17·33 | 2 49 51·6 | ·7339294 | 5 43·3 | 200 52 13·0 | 1 16 59·4 | · |
| 7 | 12 39 36·17 | 2 52 7·8 | ·7351680 | 5 39·7 | 200 56 45·4 | 1 16 58·1 | · |
| 8 | 12 39 55·56 | 2 54 27·5 | ·7364017 | 5 36·1 | 201 1 17·8 | 1 16 56·8 | · |
| 9 | 12 40 15·51 | 2 56 50·6 | ·7376302 | 5 32·5 | 201 5 50·3 | 1 16 55·4 | · |
| 10 | 12 40 36·01 | 2 59 17·0 | ·7388531 | 5 28·9 | 201 10 22·8 | 1 16 54·1 | · |
| 11 | 12 40 57·05 | 3 1 46·8 | ·7400704 | 5 25·3 | 201 14 55·2 | 1 16 52·8 | · |
| 12 | 12 41 18·62 | 3 4 19·8 | ·7412817 | 5 21·7 | 201 19 27·6 | 1 16 51·4 | · |
| 13 | 12 41 40·72 | 3 6 56·0 | ·7424867 | 5 18·2 | 201 24 0·0 | 1 16 50·0 | · |
| 14 | 12 42 3·34 | 3 9 35·4 | ·7436853 | 5 14·6 | 201 28 32·4 | 1 16 48·7 | · |
| 15 | 12 42 26·48 | 3 12 17·9 | ·7448771 | 5 11·1 | 201 33 4·7 | 1 16 47·3 | · |
| 16 | 12 42 50·13 | 3 15 3·5 | ·7460618 | 5 7·5 | 201 37 37·0 | 1 16 45·9 | · |
| 17 | 12 43 14·29 | 3 17 52·2 | ·7472394 | 5 4·0 | 201 42 9·3 | 1 16 44·5 | · |
| 18 | 12 43 38·96 | 3 20 43·9 | ·7484097 | 5 0·5 | 201 46 41·6 | 1 16 43·1 | · |
| 19 | 12 44 4·12 | 3 23 38·5 | ·7495723 | 4 57·0 | 201 51 14·0 | 1 16 41·7 | · |
| 20 | 12 44 29·77 | 3 26 36·0 | ·7507273 | 4 53·5 | 201 55 46·4 | 1 16 40·3 | · |
| 21 | 12 44 55·91 | 3 29 36·4 | ·7518742 | 4 50·0 | 202 0 18·9 | 1 16 38·9 | · |
| 22 | 12 45 22·52 | 3 32 39·7 | ·7530129 | 4 46·5 | 202 4 51·4 | 1 16 37·4 | · |
| 23 | 12 45 49·61 | 3 35 45·7 | ·7541435 | 4 43·0 | 202 9 23·9 | 1 16 36·0 | · |
| 24 | 12 46 17·17 | 3 38 54·4 | ·7552656 | 4 39·5 | 202 13 56·4 | 1 16 34·6 | · |
| 25 | 12 46 45·18 | 3 42 5·8 | ·7563791 | 4 36·0 | 202 18 29·0 | 1 16 33·1 | · |
| 26 | 12 47 13·64 | 3 45 19·8 | ·7574841 | 4 32·6 | 202 23 1·5 | 1 16 31·7 | · |
| 27 | 12 47 42·55 | 3 48 36·5 | ·7585804 | 4 29·1 | 202 27 34·0 | 1 16 30·2 | · |
| 28 | 12 48 11·91 | 3 51 55·8 | ·7596676 | 4 25·7 | 202 32 6·4 | 1 16 28·7 | · |
| 29 | 12 48 41·71 | 3 55 17·6 | ·7607458 | 4 22·3 | 202 36 38·8 | 1 16 27·2 | · |
| 30 | 12 49 11·93 | 3 58 41·9 | ·7618147 | 4 18·8 | 202 41 11·2 | 1 16 25·7 | · |
| 31 | 12 49 42·59 | 4 2 8·6 | ·7628742 | 4 15·4 | 202 45 43·6 | 1 16 24·2 | · |
| 32 | 12 50 13·67 | S. 4 5 37·7 | 0·7639242 | 4 12·0 | 202 50 16·0 | N. 1 16 22·7 | 0· |

# JUNE, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 12 34 39 ·37 | − 0 ·13 | 1 ·36 | S. 2 10 24 ·9 | + 0 ·1 | 18 ·9 | 1 ·8 |
| 12 34 36 ·53 | 0 ·10 | 1 ·35 | 2 10 23 ·7 | 0 ·0 | 18 ·8 | 1 ·7 |
| 12 34 34 ·35 | 0 ·08 | 1 ·35 | 2 10 26 ·8 | − 0 ·2 | 18 ·8 | 1 ·7 |
| 12 34 32 ·84 | 0 ·05 | 1 ·35 | 2 10 34 ·0 | 0 ·4 | 18 ·7 | 1 ·7 |
| 12 34 31 ·98 | − 0 ·02 | 1 ·34 | 2 10 45 ·5 | 0 ·6 | 18 ·6 | 1 ·7 |
| 12 34 31 ·78 | + 0 ·01 | 1 ·34 | 2 11 1 ·3 | 0 ·7 | 18 ·6 | 1 ·7 |
| 12 34 32 ·23 | 0 ·04 | 1 ·34 | 2 11 21 ·3 | 0 ·9 | 18 ·5 | 1 ·7 |
| 12 34 33 ·34 | 0 ·06 | 1 ·33 | 2 11 45 ·6 | 1 ·1 | 18 ·5 | 1 ·7 |
| 12 34 35 ·11 | 0 ·09 | 1 ·33 | 2 12 14 ·2 | 1 ·3 | 18 ·4 | 1 ·7 |
| 12 34 37 ·55 | 0 ·12 | 1 ·33 | 2 12 47 ·1 | 1 ·5 | 18 ·4 | 1 ·7 |
| 12 34 40 ·65 | 0 ·14 | 1 ·32 | 2 13 24 ·3 | 1 ·6 | 18 ·3 | 1 ·7 |
| 12 34 44 ·40 | 0 ·17 | 1 ·32 | 2 14 5 ·7 | 1 ·8 | 18 ·3 | 1 ·7 |
| 12 34 48 ·80 | 0 ·20 | 1 ·31 | 2 14 51 ·2 | 2 ·0 | 18 ·2 | 1 ·7 |
| 12 34 53 ·85 | 0 ·22 | 1 ·31 | 2 15 40 ·9 | 2 ·2 | 18 ·2 | 1 ·7 |
| 12 34 59 ·55 | 0 ·25 | 1 ·30 | 2 16 34 ·7 | 2 ·3 | 18 ·1 | 1 ·7 |
| 12 35 5 ·89 | 0 ·28 | 1 ·30 | 2 17 32 ·6 | 2 ·5 | 18 ·1 | 1 ·7 |
| 12 35 12 ·87 | 0 ·30 | 1 ·30 | 2 18 34 ·5 | 2 ·7 | 18 ·0 | 1 ·7 |
| 12 35 20 ·49 | 0 ·33 | 1 ·29 | 2 19 40 ·5 | 2 ·8 | 18 ·0 | 1 ·7 |
| 12 35 28 ·74 | 0 ·36 | 1 ·29 | 2 20 50 ·5 | 3 ·0 | 17 ·9 | 1 ·7 |
| 12 35 37 ·63 | 0 ·38 | 1 ·29 | 2 22 4 ·5 | 3 ·2 | 17 ·8 | 1 ·7 |
| 12 35 47 ·14 | 0 ·41 | 1 ·28 | 2 23 22 ·5 | 3 ·3 | 17 ·8 | 1 ·7 |
| 12 35 57 ·27 | 0 ·43 | 1 ·28 | 2 24 44 ·5 | 3 ·5 | 17 ·7 | 1 ·6 |
| 12 36 8 ·01 | 0 ·46 | 1 ·27 | 2 26 10 ·3 | 3 ·7 | 17 ·7 | 1 ·6 |
| 12 36 19 ·36 | 0 ·49 | 1 ·27 | 2 27 39 ·9 | 3 ·8 | 17 ·6 | 1 ·6 |
| 12 36 31 ·33 | 0 ·51 | 1 ·26 | 2 29 13 ·4 | 4 ·0 | 17 ·6 | 1 ·6 |
| 12 36 43 ·90 | 0 ·54 | 1 ·26 | 2 30 50 ·7 | 4 ·1 | 17 ·5 | 1 ·6 |
| 12 36 57 ·07 | 0 ·56 | 1 ·26 | 2 32 31 ·7 | 4 ·3 | 17 ·5 | 1 ·6 |
| 12 37 10 ·84 | 0 ·59 | 1 ·25 | 2 34 16 ·4 | 4 ·4 | 17 ·4 | 1 ·6 |
| 12 37 25 ·19 | 0 ·61 | 1 ·25 | 2 36 4 ·8 | 4 ·6 | 17 ·4 | 1 ·6 |
| 12 37 40 ·12 | 0 ·63 | 1 ·25 | 2 37 56 ·9 | 4 ·7 | 17 ·3 | 1 ·6 |
| 12 37 55 ·63 | + 0 ·66 | 1 ·25 | S. 2 39 52 ·5 | − 4 ·9 | 17 ·3 | 1 ·6 |

# AUGUST, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | R |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 12 50 13·67 | S. 4 5 37·7 | 0·7639242 | 4 12·0 | 202 50 16·0 | N. 1 16 22·7 | 0·7 |
| 2 | 12 50 45·18 | 4 9 9·3 | ·7649648 | 4 8·6 | 202 54 48·5 | 1 16 21·2 | ·7 |
| 3 | 12 51 17·11 | 4 12 43·2 | ·7659955 | 4 5·2 | 202 59 21·0 | 1 16 19·7 | ·7 |
| 4 | 12 51 49·45 | 4 16 19·5 | ·7670163 | 4 1·8 | 203 3 53·6 | 1 16 18·2 | ·7 |
| 5 | 12 52 22·20 | 4 19 58·1 | ·7680268 | 3 58·4 | 203 8 26·2 | 1 16 16·6 | ·7 |
| 6 | 12 52 55·36 | 4 23 39·0 | ·7690270 | 3 55·0 | 203 12 58·8 | 1 16 15·1 | ·7 |
| 7 | 12 53 28·91 | 4 27 22·1 | ·7700169 | 3 51·6 | 203 17 31·5 | 1 16 13·5 | ·7 |
| 8 | 12 54 2·85 | 4 31 7·4 | ·7709963 | 3 48·3 | 203 22 4·1 | 1 16 11·9 | ·7 |
| 9 | 12 54 37·18 | 4 34 54·8 | ·7719650 | 3 44·9 | 203 26 36·6 | 1 16 10·4 | ·7 |
| 10 | 12 55 11·89 | 4 38 44·2 | ·7729231 | 3 41·6 | 203 31 9·2 | 1 16 8·8 | ·7 |
| 11 | 12 55 46·97 | 4 42 35·7 | ·7738703 | 3 38·2 | 203 35 41·7 | 1 16 7·2 | ·7 |
| 12 | 12 56 22·42 | 4 46 29·2 | ·7748064 | 3 34·8 | 203 40 14·1 | 1 16 5·6 | ·7 |
| 13 | 12 56 58·24 | 4 50 24·6 | ·7757313 | 3 31·5 | 203 44 46·6 | 1 16 4·0 | ·7 |
| 14 | 12 57 34·42 | 4 54 21·9 | ·7766448 | 3 28·2 | 203 49 19·1 | 1 16 2·4 | ·7 |
| 15 | 12 58 10·95 | 4 58 21·1 | ·7775468 | 3 24·9 | 203 53 51·7 | 1 16 0·7 | ·7 |
| 16 | 12 58 47·83 | 5 2 22·1 | ·7784374 | 3 21·6 | 203 58 24·2 | 1 15 59·1 | ·73 |
| 17 | 12 59 25·06 | 5 6 24·9 | ·7793165 | 3 18·2 | 204 2 56·8 | 1 15 57·5 | ·73 |
| 18 | 13 0 2·62 | 5 10 29·4 | ·7801839 | 3 14·9 | 204 7 29·5 | 1 15 55·8 | ·73 |
| 19 | 13 0 40·52 | 5 14 35·7 | ·7810397 | 3 11·6 | 204 12 2·2 | 1 15 54·2 | ·73 |
| 20 | 13 1 18·75 | 5 18 43·7 | ·7818836 | 3 8·3 | 204 16 34·9 | 1 15 52·5 | ·73 |
| 21 | 13 1 57·29 | 5 22 53·2 | ·7827156 | 3 5·0 | 204 21 7·6 | 1 15 50·9 | ·73 |
| 22 | 13 2 36·15 | 5 27 4·3 | ·7835356 | 3 1·7 | 204 25 40·3 | 1 15 49·2 | ·736 |
| 23 | 13 3 15·31 | 5 31 16·9 | ·7843437 | 2 58·5 | 204 30 13·0 | 1 15 47·5 | ·736 |
| 24 | 13 3 54·78 | 5 35 31·0 | ·7851398 | 2 55·2 | 204 34 45·6 | 1 15 45·8 | ·736 |
| 25 | 13 4 34·55 | 5 39 46·5 | ·7859238 | 2 51·9 | 204 39 18·2 | 1 15 44·1 | ·736 |
| 26 | 13 5 14·62 | 5 44 3·5 | ·7866956 | 2 48·6 | 204 43 50·7 | 1 15 42·4 | ·736 |
| 27 | 13 5 54·98 | 5 48 21·9 | ·7874552 | 2 45·4 | 204 48 23·3 | 1 15 40·7 | ·736 |
| 28 | 13 6 35·63 | 5 52 41·6 | ·7882026 | 2 42·1 | 204 52 55·9 | 1 15 38·9 | ·736 |
| 29 | 13 7 16·57 | 5 57 2·6 | ·7889376 | 2 38·9 | 204 57 28·5 | 1 15 37·2 | ·736 |
| 30 | 13 7 57·78 | 6 1 24·9 | ·7896601 | 2 35·6 | 205 2 1·2 | 1 15 35·4 | ·736 |
| 31 | 13 8 39·28 | 6 5 48·6 | ·7903702 | 2 32·4 | 205 6 33·9 | 1 15 33·7 | ·736 |
| | 13 9 21·06 | S. 6 10 13·6 | 0·7910677 | 2 29·1 | 205 11 6·7 | N. 1 15 31·9 | 0·736 |

# JUNE, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 12 34 39 ·37 | — 0 ·13 | 1 ·36 | S. 2 10 24 ·9 | + 0 ·1 | 18 ·9 | 1 ·8 |
| 12 34 36 ·53 | 0 ·10 | 1 ·35 | 2 10 23 ·7 | 0 ·0 | 18 ·8 | 1 ·7 |
| 12 34 34 ·35 | 0 ·08 | 1 ·35 | 2 10 26 ·8 | — 0 ·2 | 18 ·8 | 1 ·7 |
| 12 34 32 ·84 | 0 ·05 | 1 ·35 | 2 10 34 ·0 | 0 ·4 | 18 ·7 | 1 ·7 |
| 12 34 31 ·98 | — 0 ·02 | 1 ·34 | 2 10 45 ·5 | 0 ·6 | 18 ·6 | 1 ·7 |
| 12 34 31 ·78 | + 0 ·01 | 1 ·34 | 2 11 1 ·3 | 0 ·7 | 18 ·6 | 1 ·7 |
| 12 34 32 ·23 | 0 ·04 | 1 ·34 | 2 11 21 ·3 | 0 ·9 | 18 ·5 | 1 ·7 |
| 12 34 33 ·34 | 0 ·06 | 1 ·33 | 2 11 45 ·6 | 1 ·1 | 18 ·5 | 1 ·7 |
| 12 34 35 ·11 | 0 ·09 | 1 ·33 | 2 12 14 ·2 | 1 ·3 | 18 ·4 | 1 ·7 |
| 12 34 37 ·55 | 0 ·12 | 1 ·33 | 2 12 47 ·1 | 1 ·5 | 18 ·4 | 1 ·7 |
| 12 34 40 ·65 | 0 ·14 | 1 ·32 | 2 13 24 ·3 | 1 ·6 | 18 ·3 | 1 ·7 |
| 12 34 44 ·40 | 0 ·17 | 1 ·32 | 2 14 5 ·7 | 1 ·8 | 18 ·3 | 1 ·7 |
| 12 34 48 ·80 | 0 ·20 | 1 ·31 | 2 14 51 ·2 | 2 ·0 | 18 ·2 | 1 ·7 |
| 12 34 53 ·85 | 0 ·22 | 1 ·31 | 2 15 40 ·9 | 2 ·2 | 18 ·2 | 1 ·7 |
| 12 34 59 ·55 | 0 ·25 | 1 ·30 | 2 16 34 ·7 | 2 ·3 | 18 ·1 | 1 ·7 |
| 12 35 5 ·89 | 0 ·28 | 1 ·30 | 2 17 32 ·6 | 2 ·5 | 18 ·1 | 1 ·7 |
| 12 35 12 ·87 | 0 ·30 | 1 ·30 | 2 18 34 ·5 | 2 ·7 | 18 ·0 | 1 ·7 |
| 12 35 20 ·49 | 0 ·33 | 1 ·29 | 2 19 40 ·5 | 2 ·8 | 18 ·0 | 1 ·7 |
| 12 35 28 ·74 | 0 ·36 | 1 ·29 | 2 20 50 ·5 | 3 ·0 | 17 ·9 | 1 ·7 |
| 12 35 37 ·63 | 0 ·38 | 1 ·29 | 2 22 4 ·5 | 3 ·2 | 17 ·8 | 1 ·7 |
| 12 35 47 ·14 | 0 ·41 | 1 ·28 | 2 23 22 ·5 | 3 ·3 | 17 ·8 | 1 ·7 |
| 12 35 57 ·27 | 0 ·43 | 1 ·28 | 2 24 44 ·5 | 3 ·5 | 17 ·7 | 1 ·6 |
| 12 36 8 ·01 | 0 ·46 | 1 ·27 | 2 26 10 ·3 | 3 ·7 | 17 ·7 | 1 ·6 |
| 12 36 19 ·36 | 0 ·49 | 1 ·27 | 2 27 39 ·9 | 3 ·8 | 17 ·6 | 1 ·6 |
| 12 36 31 ·33 | 0 ·51 | 1 ·26 | 2 29 13 ·4 | 4 ·0 | 17 ·6 | 1 ·6 |
| 12 36 43 ·90 | 0 ·54 | 1 ·26 | 2 30 50 ·7 | 4 ·1 | 17 ·5 | 1 ·6 |
| 12 36 57 ·07 | 0 ·56 | 1 ·26 | 2 32 31 ·7 | 4 ·3 | 17 ·5 | 1 ·6 |
| 12 37 10 ·84 | 0 ·59 | 1 ·25 | 2 34 16 ·4 | 4 ·4 | 17 ·4 | 1 ·6 |
| 12 37 25 ·19 | 0 ·61 | 1 ·25 | 2 36 4 ·8 | 4 ·6 | 17 ·4 | 1 ·6 |
| 12 37 40 ·12 | 0 ·63 | 1 ·25 | 2 37 56 ·9 | 4 ·7 | 17 ·3 | 1 ·6 |
| 12 37 55 ·63 | + 0 ·66 | 1 ·25 | S. 2 39 52 ·5 | — 4 ·9 | 17 ·3 | 1 ·6 |

# SEPTEMBER, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *No* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 13 9 21·06 | S. 6 10 13·6 | 0·7910677 | 2 29·1 | 205 11 6·7 | N. 1 15 31·9 | 0·736 |
| 2 | 13 10 3·11 | 6 14 39·7 | ·7917525 | 2 25·9 | 205 15 39·5 | 1 15 30·2 | ·736 |
| 3 | 13 10 45·42 | 6 19 7·0 | ·7924246 | 2 22·7 | 205 20 12·3 | 1 15 28·4 | ·736 |
| 4 | 13 11 27·99 | 6 23 35·4 | ·7930839 | 2 19·4 | 205 24 45·1 | 1 15 26·6 | ·736 |
| 5 | 13 12 10·82 | 6 28 4·8 | ·7937302 | 2 16·2 | 205 29 17·9 | 1 15 24·8 | ·736 |
| 6 | 13 12 53·89 | 6 32 35·3 | ·7943635 | 2 13·0 | 205 33 50·6 | 1 15 23·0 | ·736 |
| 7 | 13 13 37·21 | 6 37 6·8 | ·7949837 | 2 9·8 | 205 38 23·3 | 1 15 21·2 | ·736 |
| 8 | 13 14 20·77 | 6 41 39·3 | ·7955907 | 2 6·6 | 205 42 56·0 | 1 15 19·4 | ·736 |
| 9 | 13 15 4·57 | 6 46 12·7 | ·7961845 | 2 3·4 | 205 47 28·7 | 1 15 17·6 | ·736 |
| 10 | 13 15 48·60 | 6 50 47·0 | ·7967650 | 2 0·2 | 205 52 1·4 | 1 15 15·7 | ·736 |
| 11 | 13 16 32·85 | 6 55 22·1 | ·7973321 | 1 57·0 | 205 56 34·1 | 1 15 13·9 | ·736 |
| 12 | 13 17 17·32 | 6 59 58·0 | ·7978859 | 1 53·8 | 206 1 6·8 | 1 15 12·1 | ·736 |
| 13 | 13 18 2·02 | 7 4 34·7 | ·7984262 | 1 50·6 | 206 5 39·6 | 1 15 10·2 | ·736 |
| 14 | 13 18 46·93 | 7 9 12·1 | ·7989530 | 1 47·4 | 206 10 12·5 | 1 15 8·3 | ·736 |
| 15 | 13 19 32·05 | 7 13 50·2 | ·7994662 | 1 44·2 | 206 14 45·4 | 1 15 6·5 | ·736 |
| 16 | 13 20 17·37 | 7 18 29·0 | ·7999658 | 1 41·1 | 206 19 18·3 | 1 15 4·6 | ·736 |
| 17 | 13 21 2·88 | 7 23 8·5 | ·8004518 | 1 37·9 | 206 23 51·2 | 1 15 2·7 | ·736 |
| 18 | 13 21 48·58 | 7 27 48·5 | ·8009242 | 1 34·7 | 206 28 24·1 | 1 15 0·8 | ·736 |
| 19 | 13 22 34·47 | 7 32 29·0 | ·8013832 | 1 31·5 | 206 32 57·0 | 1 14 58·9 | ·736 |
| 20 | 13 23 20·53 | 7 37 10·0 | ·8018285 | 1 28·4 | 206 37 29·9 | 1 14 57·0 | ·736 |
| 21 | 13 24 6·78 | 7 41 51·4 | ·8022601 | 1 25·2 | 206 42 2·7 | 1 14 55·1 | ·736 |
| 22 | 13 24 53·20 | 7 46 33·3 | ·8026780 | 1 22·1 | 206 46 35·5 | 1 14 53·1 | ·736 |
| 23 | 13 25 39·78 | 7 51 15·6 | ·8030821 | 1 18·9 | 206 51 8·3 | 1 14 51·2 | ·736 |
| 24 | 13 26 26·53 | 7 55 58·2 | ·8034725 | 1 15·7 | 206 55 41·1 | 1 14 49·2 | ·736 |
| 25 | 13 27 13·45 | 8 0 41·2 | ·8038492 | 1 12·6 | 207 0 13·9 | 1 14 47·3 | ·736 |
| 26 | 13 28 0·53 | 8 5 24·5 | ·8042121 | 1 9·5 | 207 4 46·8 | 1 14 45·3 | ·736 |
| 27 | 13 28 47·77 | 8 10 8·1 | ·8045612 | 1 6·3 | 207 9 19·8 | 1 14 43·4 | ·736 |
| 28 | 13 29 35·17 | 8 14 52·1 | ·8048965 | 1 3·2 | 207 13 52·8 | 1 14 41·4 | ·736 |
| 29 | 13 30 22·71 | 8 19 36·3 | ·8052178 | 1 0·0 | 207 18 25·9 | 1 14 39·4 | ·735 |
| 30 | 13 31 10·40 | 8 24 20·7 | ·8055251 | 0 56·9 | 207 22 59·0 | 1 14 37·4 | ·735 |
| 31 | 13 31 58·23 | S. 8 29 5·3 | 0·8058184 | 0 53·7 | 207 27 32·0 | N. 1 14 35·4 | 0·735 |

# SEPTEMBER, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 13 9 25 ·41 | + 1 ·74 | 1 ·08 | S. 6 10 41 ·1 | — 11 ·0 | 15 ·0 | 1 ·4 |
| 13 10 7 ·39 | 1 ·75 | 1 ·08 | 6 15 6 ·8 | 11 ·1 | 14 ·9 | 1 ·4 |
| 13 10 49 ·63 | 1 ·77 | 1 ·08 | 6 19 33 ·6 | 11 ·1 | 14 ·9 | 1 ·4 |
| 13 11 32 ·13 | 1 ·78 | 1 ·08 | 6 24 1 ·5 | 11 ·2 | 14 ·9 | 1 ·4 |
| 13 12 14 ·88 | 1 ·79 | 1 ·07 | 6 28 30 ·4 | 11 ·2 | 14 ·9 | 1 ·4 |
| 13 12 57 ·88 | 1 ·80 | 1 ·07 | 6 33 0 ·4 | 11 ·3 | 14 ·8 | 1 ·4 |
| 13 13 41 ·13 | 1 ·81 | 1 ·07 | 6 37 31 ·4 | 11 ·3 | 14 ·8 | 1 ·4 |
| 13 14 24 ·61 | 1 ·82 | 1 ·07 | 6 42 3 ·4 | 11 ·4 | 14 ·8 | 1 ·4 |
| 13 15 8 ·33 | 1 ·83 | 1 ·07 | 6 46 36 ·2 | 11 ·4 | 14 ·8 | 1 ·4 |
| 13 15 52 ·28 | 1 ·84 | 1 ·07 | 6 51 9 ·9 | 11 ·4 | 14 ·8 | 1 ·4 |
| 13 16 36 ·45 | 1 ·85 | 1 ·07 | 6 55 44 ·5 | 11 ·5 | 14 ·7 | 1 ·4 |
| 13 17 20 ·84 | 1 ·85 | 1 ·06 | 7 0 19 ·9 | 11 ·5 | 14 ·7 | 1 ·4 |
| 13 18 5 ·46 | 1 ·86 | 1 ·06 | 7 4 56 ·1 | 11 ·5 | 14 ·7 | 1 ·4 |
| 13 18 50 ·29 | 1 ·87 | 1 ·06 | 7 9 32 ·9 | 11 ·5 | 14 ·7 | 1 ·4 |
| 13 19 35 ·32 | 1 ·88 | 1 ·06 | 7 14 10 ·4 | 11 ·6 | 14 ·7 | 1 ·4 |
| 13 20 20 ·56 | 1 ·89 | 1 ·06 | 7 18 48 ·6 | 11 ·6 | 14 ·6 | 1 ·4 |
| 13 21 5 ·99 | 1 ·90 | 1 ·06 | 7 23 27 ·5 | 11 ·6 | 14 ·6 | 1 ·4 |
| 13 21 51 ·60 | 1 ·90 | 1 ·05 | 7 28 6 ·9 | 11 ·6 | 14 ·6 | 1 ·4 |
| 13 22 37 ·40 | 1 ·91 | 1 ·05 | 7 32 46 ·9 | 11 ·7 | 14 ·6 | 1 ·4 |
| 13 23 23 ·37 | 1 ·92 | 1 ·05 | 7 37 27 ·3 | 11 ·7 | 14 ·6 | 1 ·4 |
| 13 24 9 ·53 | 1 ·93 | 1 ·05 | 7 42 8 ·1 | 11 ·7 | 14 ·6 | 1 ·4 |
| 13 24 55 ·86 | 1 ·93 | 1 ·05 | 7 46 49 ·4 | 11 ·7 | 14 ·6 | 1 ·4 |
| 13 25 42 ·35 | 1 ·94 | 1 ·05 | 7 51 31 ·1 | 11 ·7 | 14 ·5 | 1 ·4 |
| 13 26 29 ·00 | 1 ·95 | 1 ·05 | 7 56 13 ·1 | 11 ·8 | 14 ·5 | 1 ·3 |
| 13 27 15 ·82 | 1 ·95 | 1 ·05 | 8 0 55 ·5 | 11 ·8 | 14 ·5 | 1 ·3 |
| 13 28 2 ·81 | 1 ·96 | 1 ·05 | 8 5 38 ·2 | 11 ·8 | 14 ·5 | 1 ·3 |
| 13 28 49 ·95 | 1 ·96 | 1 ·05 | 8 10 21 ·2 | 11 ·8 | 14 ·5 | 1 ·3 |
| 13 29 37 ·25 | 1 ·97 | 1 ·05 | 8 15 4 ·6 | 11 ·8 | 14 ·5 | 1 ·3 |
| 13 30 24 ·70 | 1 ·98 | 1 ·05 | 8 19 48 ·2 | 11 ·8 | 14 ·5 | 1 ·3 |
| 13 31 12 ·29 | 1 ·99 | 1 ·04 | 8 24 31 ·9 | 11 ·8 | 14 ·5 | 1 ·3 |
| 13 32 0 ·02 | + 1 ·99 | 1 ·04 | S. 8 29 15 ·8 | — 11 ·8 | 14 ·5 | 1 ·3 |

# OCTOBER, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | R |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 13 31 58·23 | S. 8 29 5·3 | 0·8058184 | 0 53·7 | 207 27 32·0 | N. 1 14 35·4 | 0·7 |
| 2 | 13 32 46·19 | 8 33 49·9 | ·8060975 | 0 50·6 | 207 32 5·0 | 1 14 33·4 | ·7 |
| 3 | 13 33 34·28 | 8 38 34·6 | ·8063624 | 0 47·4 | 207 36 38·0 | 1 14 31·4 | ·7 |
| 4 | 13 34 22·49 | 8 43 19·3 | ·8066131 | 0 44·3 | 207 41 11·0 | 1 14 29·3 | ·7 |
| 5 | 13 35 10·83 | 8 48 4·1 | ·8068496 | 0 41·2 | 207 45 43·9 | 1 14 27·3 | ·7 |
| 6 | 13 35 59·28 | 8 52 48·9 | ·8070717 | 0 38·1 | 207 50 16·9 | 1 14 25·3 | ·7 |
| 7 | 13 36 47·84 | 8 57 33·6 | ·8072793 | 0 34·9 | 207 54 49·8 | 1 14 23·2 | ·7 |
| 8 | 13 37 36·51 | 9 2 18·2 | ·8074726 | 0 31·8 | 207 59 22·8 | 1 14 21·2 | ·7 |
| 9 | 13 38 25·29 | 9 7 2·8 | ·8076516 | 0 28·7 | 208 3 55·8 | 1 14 19·1 | ·7 |
| 10 | 13 39 14·17 | 9 11 47·2 | ·8078165 | 0 25·6 | 208 8 28·9 | 1 14 17·0 | ·7 |
| 11 | 13 40 3·14 | 9 16 31·4 | ·8079670 | 0 22·4 | 208 13 2·0 | 1 14 15·0 | ·7 |
| 12 | 13 40 52·20 | 9 21 15·3 | ·8081030 | 0 19·3 | 208 17 35·1 | 1 14 12·9 | ·7 |
| 13 | 13 41 41·34 | 9 25 59·0 | ·8082243 | 0 16·2 | 208 22 8·3 | 1 14 10·8 | ·7 |
| 14 | 13 42 30·55 | 9 30 42·3 | ·8083311 | 0 13·1 | 208 26 41·5 | 1 14 8·7 | ·7 |
| 15 | 13 43 19·84 | 9 35 25·3 | ·8084234 | 0 10·0 | 208 31 14·7 | 1 14 6·6 | ·7 |
| 16 | 13 44 9·20 | 9 40 7·9 | ·8085013 | 0 6·9 | 208 35 47·9 | 1 14 4·5 | ·7 |
| 17 | 13 44 58·61 | 9 44 50·1 | ·8085647 | 0 3·8 | 208 40 21·1 | 1 14 2·3 | ·7 |
| 18 | 13 45 48·08 | 9 49 31·9 | ·8086137 | {0 0·6 / 23 57·5} | 208 44 54·2 | 1 14 0·2 | ·7 |
| 19 | 13 46 37·60 | 9 54 13·2 | ·8086481 | 23 54·4 | 208 49 27·3 | 1 13 58·1 | ·7 |
| 20 | 13 47 27·17 | 9 58 54·0 | ·8086681 | 23 51·3 | 208 54 0·4 | 1 13 55·9 | ·7 |
| 21 | 13 48 16·79 | 10 3 34·4 | ·8086737 | 23 48·2 | 208 58 33·5 | 1 13 53·8 | ·7 |
| 22 | 13 49 6·45 | 10 8 14·2 | ·8086649 | 23 45·1 | 209 3 6·6 | 1 13 51·6 | ·7 |
| 23 | 13 49 56·15 | 10 12 53·4 | ·8086417 | 23 42·0 | 209 7 39·8 | 1 13 49·4 | ·7 |
| 24 | 13 50 45·88 | 10 17 32·0 | ·8086040 | 23 38·9 | 209 12 13·1 | 1 13 47·2 | ·7 |
| 25 | 13 51 35·64 | 10 22 10·0 | ·8085517 | 23 35·8 | 209 16 46·4 | 1 13 45·0 | ·7 |
| 26 | 13 52 25·43 | 10 26 47·3 | ·8084848 | 23 32·7 | 209 21 19·7 | 1 13 42·9 | ·7 |
| 27 | 13 53 15·25 | 10 31 23·9 | ·8084034 | 23 29·6 | 209 25 53·1 | 1 13 40·7 | ·7 |
| 28 | 13 54 5·08 | 10 35 59·9 | ·8083075 | 23 26·5 | 209 30 26·5 | 1 13 38·4 | ·7 |
| 29 | 13 54 54·92 | 10 40 35·1 | ·8081970 | 23 23·4 | 209 34 59·8 | 1 13 36·2 | ·7 |
| 30 | 13 55 44·77 | 10 45 9·6 | ·8080719 | 23 20·3 | 209 39 33·1 | 1 13 34·0 | ·7 |
| 31 | 13 56 34·62 | 10 49 43·2 | ·8079321 | 23 17·1 | 209 44 6·4 | 1 13 31·8 | ·7 |
| 32 | 13 57 24·46 | S. 10 54 15·9 | 0·8077776 | 23 14·0 | 209 48 39·7 | N. 1 13 29·5 | 0·7 |

# OCTOBER, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 13 32 0 ·02 | + 1 ·99 | 1 ·04 | S. 8 29 15 ·8 | —11 ·8 | 14 ·5 | 1 ·3 |
| 13 32 47 ·88 | 2 ·00 | 1 ·04 | 8 33 59 ·9 | 11 ·8 | 14 ·4 | 1 ·3 |
| 13 33 35 ·87 | 2 ·00 | 1 ·04 | 8 38 44 ·0 | 11 ·8 | 14 ·4 | 1 ·3 |
| 13 34 23 ·98 | 2 ·01 | 1 ·04 | 8 43 28 ·1 | 11 ·8 | 14 ·4 | 1 ·3 |
| 13 35 12 ·21 | 2 ·01 | 1 ·05 | 8 48 12 ·3 | 11 ·8 | 14 ·4 | 1 ·3 |
| 13 36 0 ·56 | 2 ·02 | 1 ·05 | 8 52 56 ·4 | 11 ·8 | 14 ·4 | 1 ·3 |
| 13 36 49 ·02 | 2 ·02 | 1 ·05 | 8 57 40 ·5 | 11 ·8 | 14 ·4 | 1 ·3 |
| 13 37 37 ·59 | 2 ·03 | 1 ·05 | 9 2 24 ·5 | 11 ·8 | 14 ·4 | 1 ·3 |
| 13 38 26 ·27 | 2 ·03 | 1 ·05 | 9 7 8 ·5 | 11 ·8 | 14 ·4 | 1 ·3 |
| 13 39 15 ·05 | 2 ·03 | 1 ·05 | 9 11 52 ·3 | 11 ·8 | 14 ·4 | 1 ·3 |
| 13 40 3 ·91 | 2 ·04 | 1 ·05 | 9 16 35 ·9 | 11 ·8 | 14 ·4 | 1 ·3 |
| 13 40 52 ·86 | 2 ·04 | 1 ·05 | 9 21 19 ·1 | 11 ·8 | 14 ·4 | 1 ·3 |
| 13 41 41 ·89 | 2 ·04 | 1 ·05 | 9 26 2 ·1 | 11 ·8 | 14 ·4 | 1 ·3 |
| 13 42 31 ·00 | 2 ·05 | 1 ·05 | 9 30 44 ·9 | 11 ·8 | 14 ·4 | 1 ·3 |
| 13 43 20 ·18 | 2 ·05 | 1 ·05 | 9 35 27 ·3 | 11 ·8 | 14 ·4 | 1 ·3 |
| 13 44 9 ·43 | 2 ·05 | 1 ·05 | 9 40 9 ·3 | 11 ·7 | 14 ·4 | 1 ·3 |
| 13 44 58 ·74 | 2 ·06 | 1 ·05 | 9 44 50 ·9 | 11 ·7 | 14 ·4 | 1 ·3 |
| {13 45 48 ·10<br>{13 46 37 ·51 | {2 ·06<br>{2 ·06 | {1 ·05<br>{1 ·05 | {9 49 32 ·0<br>{9 54 13 ·7 | {11 ·7<br>{11 ·7 | {14 ·4<br>{14 ·4 | {1 ·3<br>{1 ·3 |
| 13 47 26 ·97 | 2 ·06 | 1 ·05 | 9 58 52 ·9 | 11 ·7 | 14 ·4 | 1 ·3 |
| 13 48 16 ·48 | 2 ·06 | 1 ·05 | 10 3 32 ·6 | 11 ·6 | 14 ·4 | 1 ·3 |
| 13 49 6 ·04 | 2 ·07 | 1 ·05 | 10 8 11 ·9 | 11 ·6 | 14 ·4 | 1 ·3 |
| 13 49 55 ·64 | 2 ·07 | 1 ·05 | 10 12 50 ·5 | 11 ·6 | 14 ·4 | 1 ·3 |
| 13 50 45 ·26 | 2 ·07 | 1 ·05 | 10 17 28 ·5 | 11 ·6 | 14 ·4 | 1 ·3 |
| 13 51 34 ·91 | 2 ·07 | 1 ·05 | 10 22 5 ·9 | 11 ·5 | 14 ·4 | 1 ·3 |
| 13 52 24 ·59 | 2 ·07 | 1 ·05 | 10 26 42 ·7 | 11 ·5 | 14 ·4 | 1 ·3 |
| 13 53 14 ·30 | 2 ·07 | 1 ·05 | 10 31 18 ·8 | 11 ·5 | 14 ·4 | 1 ·3 |
| 13 54 4 ·03 | 2 ·07 | 1 ·05 | 10 35 54 ·1 | 11 ·5 | 14 ·4 | 1 ·3 |
| 13 54 53 ·76 | 2 ·07 | 1 ·05 | 10 40 28 ·7 | 11 ·4 | 14 ·4 | 1 ·3 |
| 13 55 43 ·50 | 2 ·07 | 1 ·05 | 10 45 2 ·5 | 11 ·4 | 14 ·4 | 1 ·3 |
| 13 56 33 ·24 | 2 ·07 | 1 ·05 | 10 49 35 ·6 | 11 ·4 | 14 ·4 | 1 ·3 |
| 13 57 22 ·97 | 2 ·07 | 1 ·05 | 10 54 7 ·8 | 11 ·3 | 14 ·4 | 1 ·3 |
| 13 58 12 ·69 | + 2 ·07 | 1 ·05 | S. 10 58 39 ·1 | —11 ·3 | 14 ·4 | 1 ·3 |

# NOVEMBER, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | |
|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ |
| 1 | 13 57 24·46 | S. 10 54 15·9 | 0·8077776 | 23 14·0 | 209 48 39·7 | N. 1 13 29·5 |
| 2 | 13 58 14·29 | 10 58 47·8 | ·8076083 | 23 10·9 | 209 53 13·0 | 1 13 27·3 |
| 3 | 13 59 4·10 | 11 3 18·8 | ·8074243 | 23 7·8 | 209 57 46·3 | 1 13 25·0 |
| 4 | 13 59 53·90 | 11 7 48·8 | ·8072255 | 23 4·7 | 210 2 19·6 | 1 13 22·7 |
| 5 | 14 0 43·68 | 11 12 17·9 | ·8070120 | 23 1·6 | 210 6 52·9 | 1 13 20·5 |
| 6 | 14 1 33·43 | 11 16 46·0 | ·8067838 | 22 58·5 | 210 11 26·3 | 1 13 18·2 |
| 7 | 14 2 23·15 | 11 21 13·0 | ·8065408 | 22 55·4 | 210 15 59·8 | 1 13 15·9 |
| 8 | 14 3 12·83 | 11 25 39·0 | ·8062831 | 22 52·3 | 210 20 33·2 | 1 13 13·6 |
| 9 | 14 4 2·46 | 11 30 3·9 | ·8060106 | 22 49·2 | 210 25 6·7 | 1 13 11·3 |
| 10 | 14 4 52·03 | 11 34 27·7 | ·8057234 | 22 46·1 | 210 29 40·3 | 1 13 9·0 |
| 11 | 14 5 41·55 | 11 38 50·3 | ·8054215 | 22 43·0 | 210 34 13·8 | 1 13 6·7 |
| 12 | 14 6 31·00 | 11 43 11·7 | ·8051049 | 22 39·9 | 210 38 47·4 | 1 13 4·3 |
| 13 | 14 7 20·37 | 11 47 31·9 | ·8047736 | 22 36·8 | 210 43 20·9 | 1 13 2·0 |
| 14 | 14 8 9·67 | 11 51 50·8 | ·8044277 | 22 33·6 | 210 47 54·4 | 1 12 59·7 |
| 15 | 14 8 58·89 | 11 56 8·5 | ·8040673 | 22 30·5 | 210 52 27·9 | 1 12 57·3 |
| 16 | 14 9 48·03 | 12 0 24·8 | ·8036924 | 22 27·4 | 210 57 1·4 | 1 12 55·0 |
| 17 | 14 10 37·07 | 12 4 39·8 | ·8033029 | 22 24·3 | 211 1 34·8 | 1 12 52·6 |
| 18 | 14 11 26·01 | 12 8 53·4 | ·8028990 | 22 21·1 | 211 6 8·3 | 1 12 50·2 |
| 19 | 14 12 14·85 | 12 13 5·6 | ·8024807 | 22 18·0 | 211 10 41·8 | 1 12 47·8 |
| 20 | 14 13 3·58 | 12 17 16·5 | ·8020480 | 22 14·9 | 211 15 15·4 | 1 12 45·5 |
| 21 | 14 13 52·21 | 12 21 26·0 | ·8016008 | 22 11·8 | 211 19 49·0 | 1 12 43·1 |
| 22 | 14 14 40·72 | 12 25 34·0 | ·8011392 | 22 8·6 | 211 24 22·7 | 1 12 40·6 |
| 23 | 14 15 29·12 | 12 29 40·6 | ·8006632 | 22 5·5 | 211 28 56·5 | 1 12 38·2 |
| 24 | 14 16 17·40 | 12 33 45·7 | ·8001728 | 22 2·4 | 211 33 30·2 | 1 12 35·8 |
| 25 | 14 17 5·54 | 12 37 49·3 | ·7996681 | 21 59·2 | 211 38 4·0 | 1 12 33·4 |
| 26 | 14 17 53·54 | 12 41 51·4 | ·7991490 | 21 56·1 | 211 42 37·7 | 1 12 31·0 |
| 27 | 14 18 41·39 | 12 45 51·9 | ·7986155 | 21 52·9 | 211 47 11·4 | 1 12 28·5 |
| 28 | 14 19 29·09 | 12 49 50·8 | ·7980676 | 21 49·8 | 211 51 45·0 | 1 12 26·1 |
| 29 | 14 20 16·63 | 12 53 48·0 | ·7975053 | 21 46·7 | 211 56 18·6 | 1 12 23·6 |
| 30 | 14 21 4·01 | 12 57 43·5 | ·7969287 | 21 43·5 | 212 0 52·3 | 1 12 21·1 |
| 31 | 14 21 51·23 | S. 13 1 37·4 | 0·7963378 | 21 40·3 | 212 5 26·0 | N. 1 12 18·7 |

# NOVEMBER, 1839.

At Transit over the Meridian of Greenwich.

| | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|---|
| | h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 1 | 13 58 12 ·69 | + 2 ·07 | 1 ·05 | S.10 58 39 ·1 | — 11 ·3 | 14 ·4 | 1 ·3 |
| 2 | 13 59 2 ·40 | 2 ·07 | 1 ·05 | 11 3 9 ·6 | 11 ·3 | 14 ·4 | 1 ·3 |
| 3 | 13 59 52 ·09 | 2 ·07 | 1 ·05 | 11 7 39 ·1 | 11 ·2 | 14 ·4 | 1 ·3 |
| 4 | 14 0 41 ·76 | 2 ·07 | 1 ·05 | 11 12 7 ·6 | 11 ·2 | 14 ·4 | 1 ·3 |
| 5 | 14 1 31 ·41 | 2 ·07 | 1 ·05 | 11 16 35 ·1 | 11 ·1 | 14 ·4 | 1 ·3 |
| 6 | 14 2 21 ·02 | 2 ·07 | 1 ·05 | 11 21 1 ·6 | 11 ·1 | 14 ·4 | 1 ·3 |
| 7 | 14 3 10 ·60 | 2 ·06 | 1 ·06 | 11 25 27 ·0 | 11 ·0 | 14 ·4 | 1 ·3 |
| 8 | 14 4 0 ·13 | 2 ·06 | 1 ·06 | 11 29 51 ·4 | 11 ·0 | 14 ·5 | 1 ·3 |
| 9 | 14 4 49 ·60 | 2 ·06 | 1 ·06 | 11 34 14 ·7 | 10 ·9 | 14 ·5 | 1 ·3 |
| 10 | 14 5 39 ·00 | 2 ·06 | 1 ·06 | 11 38 36 ·8 | 10 ·9 | 14 ·5 | 1 ·3 |
| 11 | 14 6 28 ·35 | 2 ·05 | 1 ·06 | 11 42 57 ·7 | 10 ·8 | 14 ·5 | 1 ·3 |
| 12 | 14 7 17 ·63 | 2 ·05 | 1 ·06 | 11 47 17 ·4 | 10 ·8 | 14 ·5 | 1 ·3 |
| 13 | 14 8 6 ·82 | 2 ·05 | 1 ·06 | 11 51 35 ·9 | 10 ·7 | 14 ·5 | 1 ·3 |
| 14 | 14 8 55 ·94 | 2 ·04 | 1 ·07 | 11 55 53 ·0 | 10 ·7 | 14 ·5 | 1 ·3 |
| 15 | 14 9 44 ·97 | 2 ·04 | 1 ·07 | 12 0 8 ·9 | 10 ·6 | 14 ·5 | 1 ·3 |
| 16 | 14 10 33 ·91 | 2 ·04 | 1 ·07 | 12 4 23 ·4 | 10 ·6 | 14 ·5 | 1 ·3 |
| 17 | 14 11 22 ·76 | 2 ·03 | 1 ·07 | 12 8 36 ·5 | 10 ·5 | 14 ·5 | 1 ·4 |
| 18 | 14 12 11 ·50 | 2 ·03 | 1 ·07 | 12 12 48 ·3 | 10 ·5 | 14 ·6 | 1 ·4 |
| 19 | 14 13 0 ·14 | 2 ·02 | 1 ·07 | 12 16 58 ·7 | 10 ·4 | 14 ·6 | 1 ·4 |
| 20 | 14 13 48 ·66 | 2 ·02 | 1 ·07 | 12 21 7 ·8 | 10 ·4 | 14 ·6 | 1 ·4 |
| 21 | 14 14 37 ·08 | 2 ·02 | 1 ·07 | 12 25 15 ·5 | 10 ·3 | 14 ·6 | 1 ·4 |
| 22 | 14 15 25 ·38 | 2 ·01 | 1 ·08 | 12 29 21 ·6 | 10 ·2 | 14 ·6 | 1 ·4 |
| 23 | 14 16 13 ·56 | 2 ·01 | 1 ·08 | 12 33 26 ·3 | 10 ·2 | 14 ·6 | 1 ·4 |
| 24 | 14 17 1 ·61 | 2 ·00 | 1 ·08 | 12 37 29 ·5 | 10 ·1 | 14 ·7 | 1 ·4 |
| 25 | 14 17 49 ·52 | 2 ·00 | 1 ·08 | 12 41 31 ·2 | 10 ·0 | 14 ·7 | 1 ·4 |
| 26 | 14 18 37 ·28 | 1 ·99 | 1 ·08 | 12 45 31 ·3 | 10 ·0 | 14 ·8 | 1 ·4 |
| 27 | 14 19 24 ·89 | 1 ·98 | 1 ·08 | 12 49 29 ·8 | 9 ·9 | 14 ·8 | 1 ·4 |
| 28 | 14 20 12 ·34 | 1 ·97 | 1 ·08 | 12 53 26 ·7 | 9 ·8 | 14 ·8 | 1 ·4 |
| 29 | 14 20 59 ·63 | 1 ·97 | 1 ·09 | 12 57 21 ·8 | 9 ·8 | 14 ·8 | 1 ·4 |
| 30 | 14 21 46 ·76 | 1 ·96 | 1 ·09 | 13 1 15 ·3 | 9 ·7 | 14 ·8 | 1 ·4 |
| 31 | 14 22 33 ·72 | + 1 ·95 | 1 ·09 | S.13 5 7 ·2 | — 9 ·6 | 14 ·8 | 1 ·4 |

# DECEMBER, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | |
|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ |
| 1 | 14 21 51·23 | S. 13 1 37·4 | 0·7963378 | 21 40·3 | 212 5 26·0 | N. 1 12 18·7 |
| 2 | 14 22 38·27 | 13 5 29·6 | ·7957325 | 21 37·2 | 212 9 59·7 | 1 12 16·2 |
| 3 | 14 23 25·14 | 13 9 20·1 | ·7951129 | 21 34·0 | 212 14 33·4 | 1 12 13·7 |
| 4 | 14 24 11·82 | 13 13 8·8 | ·7944791 | 21 30·9 | 212 19 7·2 | 1 12 11·2 |
| 5 | 14 24 58·30 | 13 16 55·7 | ·7938311 | 21 27·7 | 212 23 41·0 | 1 12 8·7 |
| 6 | 14 25 44·58 | 13 20 40·8 | ·7931691 | 21 24·6 | 212 28 14·9 | 1 12 6·2 |
| 7 | 14 26 30·64 | 13 24 24·0 | ·7924931 | 21 21·4 | 212 32 48·8 | 1 12 3·6 |
| 8 | 14 27 16·49 | 13 28 5·3 | ·7918031 | 21 18·2 | 212 37 22·8 | 1 12 1·1 |
| 9 | 14 28 2·12 | 13 31 44·7 | ·7910988 | 21 15·0 | 212 41 56·8 | 1 11 58·6 |
| 10 | 14 28 47·51 | 13 35 22·3 | ·7903807 | 21 11·9 | 212 46 30·7 | 1 11 56·0 |
| 11 | 14 29 32·67 | 13 38 58·0 | ·7896488 | 21 8·7 | 212 51 4·6 | 1 11 53·5 |
| 12 | 14 30 17·58 | 13 42 31·6 | ·7889033 | 21 5·5 | 212 55 38·5 | 1 11 50·9 |
| 13 | 14 31 2·24 | 13 46 3·2 | ·7881443 | 21 2·3 | 213 0 12·3 | 1 11 48·4 |
| 14 | 14 31 46·64 | 13 49 32·8 | ·7873717 | 20 59·1 | 213 4 46·2 | 1 11 45·8 |
| 15 | 14 32 30·78 | 13 53 0·3 | ·7865856 | 20 55·9 | 213 9 20·0 | 1 11 43·2 |
| 16 | 14 33 14·64 | 13 56 25·8 | ·7857862 | 20 52·7 | 213 13 53·9 | 1 11 40·6 |
| 17 | 14 33 58·24 | 13 59 49·2 | ·7849735 | 20 49·5 | 213 18 27·8 | 1 11 38·0 |
| 18 | 14 34 41·56 | 14 3 10·5 | ·7841475 | 20 46·2 | 213 23 1·8 | 1 11 35·4 |
| 19 | 14 35 24·59 | 14 6 29·7 | ·7833084 | 20 43·0 | 213 27 35·9 | 1 11 32·8 |
| 20 | 14 36 7·34 | 14 9 46·9 | ·7824562 | 20 39·8 | 213 32 10·0 | 1 11 30·2 |
| 21 | 14 36 49·79 | 14 13 1·9 | ·7815908 | 20 36·5 | 213 36 44·2 | 1 11 27·5 |
| 22 | 14 37 31·92 | 14 16 14·8 | ·7807125 | 20 33·3 | 213 41 18·3 | 1 11 24·9 |
| 23 | 14 38 13·74 | 14 19 25·5 | ·7798213 | 20 30·1 | 213 45 52·4 | 1 11 22·3 |
| 24 | 14 38 55·23 | 14 22 34·0 | ·7789177 | 20 26·8 | 213 50 26·5 | 1 11 19·6 |
| 25 | 14 39 36·40 | 14 25 40·3 | ·7780014 | 20 23·6 | 213 55 0·5 | 1 11 17·0 |
| 26 | 14 40 17·24 | 14 28 44·4 | ·7770724 | 20 20·3 | 213 59 34·5 | 1 11 14·3 |
| 27 | 14 40 57·73 | 14 31 46·1 | ·7761305 | 20 17·1 | 214 4 8·6 | 1 11 11·6 |
| 28 | 14 41 37·87 | 14 34 45·5 | ·7751761 | 20 13·8 | 214 8 42·6 | 1 11 8·9 |
| 29 | 14 42 17·65 | 14 37 42·6 | ·7742092 | 20 10·5 | 214 13 16·7 | 1 11 6·2 |
| 30 | 14 42 57·07 | 14 40 37·4 | ·7732301 | 20 7·2 | 214 17 50·8 | 1 11 3·5 |
| 31 | 14 43 36·12 | 14 43 29·8 | ·7722389 | 20 3·9 | 214 22 25·0 | 1 11 0·8 |
| 32 | 14 44 14·79 | S. 14 46 19·8 | 0·7712355 | 20 0·6 | 214 26 59·1 | N. 1 10 58·1 |

# DECEMBER, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 14 22 33 ·72 | + 1 ·95 | 1 ·09 | S.13 5 7 ·2 | − 9 ·6 | 14 ·8 | 1 ·4 |
| 14 23 20 ·50 | 1 ·95 | 1 ·10 | 13 8 57 ·3 | 9 ·6 | 14 ·8 | 1 ·4 |
| 14 24 7 ·10 | 1 ·94 | 1 ·10 | 13 12 45 ·7 | 9 ·5 | 14 ·8 | 1 ·4 |
| 14 24 53 ·50 | 1 ·93 | 1 ·10 | 13 16 32 ·3 | 9 ·4 | 14 ·8 | 1 ·4 |
| 14 25 39 ·70 | 1 ·92 | 1 ·10 | 13 20 17 ·1 | 9 ·3 | 14 ·9 | 1 ·4 |
| 14 26 25 ·69 | 1 ·91 | 1 ·10 | 13 24 0 ·0 | 9 ·2 | 14 ·9 | 1 ·4 |
| 14 27 11 ·45 | 1 ·90 | 1 ·10 | 13 27 41 ·0 | 9 ·2 | 14 ·9 | 1 ·4 |
| 14 27 57 ·00 | 1 ·89 | 1 ·10 | 13 31 20 ·1 | 9 ·1 | 14 ·9 | 1 ·4 |
| 14 28 42 ·32 | 1 ·88 | 1 ·10 | 13 34 57 ·3 | 9 ·0 | 15 ·0 | 1 ·4 |
| 14 29 27 ·41 | 1 ·87 | 1 ·11 | 13 38 32 ·7 | 8 ·9 | 15 ·0 | 1 ·4 |
| 14 30 12 ·25 | 1 ·86 | 1 ·11 | 13 42 6 ·2 | 8 ·9 | 15 ·0 | 1 ·4 |
| 14 30 56 ·84 | 1 ·85 | 1 ·11 | 13 45 37 ·6 | 8 ·8 | 15 ·1 | 1 ·4 |
| 14 31 41 ·17 | 1 ·84 | 1 ·11 | 13 49 6 ·9 | 8 ·7 | 15 ·1 | 1 ·4 |
| 14 32 25 ·24 | 1 ·83 | 1 ·12 | 13 52 34 ·3 | 8 ·6 | 15 ·1 | 1 ·4 |
| 14 33 9 ·05 | 1 ·82 | 1 ·12 | 13 55 59 ·6 | 8 ·5 | 15 ·1 | 1 ·4 |
| 14 33 52 ·59 | 1 ·81 | 1 ·12 | 13 59 22 ·9 | 8 ·4 | 15 ·2 | 1 ·4 |
| 14 34 35 ·85 | 1 ·80 | 1 ·12 | 14 2 44 ·0 | 8 ·3 | 15 ·2 | 1 ·4 |
| 14 35 18 ·82 | 1 ·78 | 1 ·12 | 14 6 3 ·0 | 8 ·3 | 15 ·2 | 1 ·4 |
| 14 36 1 ·51 | 1 ·77 | 1 ·13 | 14 9 20 ·0 | 8 ·2 | 15 ·2 | 1 ·4 |
| 14 36 43 ·91 | 1 ·76 | 1 ·13 | 14 12 34 ·9 | 8 ·1 | 15 ·3 | 1 ·4 |
| 14 37 26 ·00 | 1 ·75 | 1 ·13 | 14 15 47 ·6 | 8 ·0 | 15 ·3 | 1 ·4 |
| 14 38 7 ·76 | 1 ·73 | 1 ·13 | 14 18 58 ·2 | 7 ·9 | 15 ·3 | 1 ·4 |
| 14 38 49 ·20 | 1 ·72 | 1 ·13 | 14 22 6 ·6 | 7 ·8 | 15 ·4 | 1 ·4 |
| 14 39 30 ·32 | 1 ·71 | 1 ·13 | 14 25 12 ·8 | 7 ·7 | 15 ·4 | 1 ·4 |
| 14 40 11 ·11 | 1 ·69 | 1 ·14 | 14 28 16 ·8 | 7 ·6 | 15 ·4 | 1 ·4 |
| 14 40 51 ·56 | 1 ·68 | 1 ·14 | 14 31 18 ·5 | 7 ·5 | 15 ·5 | 1 ·4 |
| 14 41 31 ·67 | 1 ·66 | 1 ·14 | 14 34 17 ·9 | 7 ·4 | 15 ·5 | 1 ·4 |
| 14 42 11 ·42 | 1 ·65 | 1 ·14 | 14 37 15 ·0 | 7 ·3 | 15 ·5 | 1 ·5 |
| 14 42 50 ·81 | 1 ·63 | 1 ·15 | 14 40 9 ·7 | 7 ·2 | 15 ·6 | 1 ·5 |
| 14 43 29 ·83 | 1 ·62 | 1 ·15 | 14 43 2 ·1 | 7 ·1 | 15 ·6 | 1 ·5 |
| 14 44 8 ·48 | 1 ·60 | 1 ·15 | 14 45 52 ·1 | 7 ·0 | 15 ·7 | 1 ·5 |
| 14 44 46 ·75 | + 1 ·58 | 1 ·15 | S.14 48 39 ·7 | − 6 ·9 | 15 ·7 | 1 ·5 |

# JANUARY, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | L Ra |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 16 16 42·73 | S. 19 33 15·6 | 1·0331869 | 21 31·8 | 242 33 1·7 | N. 1 53 55·0 | 1·0 |
| 2 | 16 17 8·90 | 19 34 17·8 | ·0328001 | 21 28·3 | 242 34 51·6 | 1 53 51·9 | ·0 |
| 3 | 16 17 34·88 | 19 35 19·0 | ·0324042 | 21 24·8 | 242 36 41·4 | 1 53 48·8 | ·0 |
| 4 | 16 18 0·67 | 19 36 19·3 | ·0319995 | 21 21·3 | 242 38 31·1 | 1 53 45·7 | ·0 |
| 5 | 16 18 26·27 | 19 37 18·8 | ·0315859 | 21 17·8 | 242 40 20·8 | 1 53 42·6 | ·0 |
| 6 | 16 18 51·68 | 19 38 17·5 | ·0311635 | 21 14·2 | 242 42 10·6 | 1 53 39·5 | ·0 |
| 7 | 16 19 16·88 | 19 39 15·4 | ·0307323 | 21 10·7 | 242 44 0·3 | 1 53 36·4 | ·0 |
| 8 | 16 19 41·88 | 19 40 12·4 | ·0302923 | 21 7·2 | 242 45 50·0 | 1 53 33·3 | ·0 |
| 9 | 16 20 6·67 | 19 41 8·5 | ·0298436 | 21 3·7 | 242 47 39·8 | 1 53 30·2 | ·0 |
| 10 | 16 20 31·25 | 19 42 3·7 | ·0293863 | 21 0·1 | 242 49 29·5 | 1 53 27·1 | ·0 |
| 11 | 16 20 55·61 | 19 42 57·9 | ·0289205 | 20 56·6 | 242 51 19·3 | 1 53 24·0 | ·0 |
| 12 | 16 21 19·74 | 19 43 51·2 | ·0284462 | 20 53·1 | 242 53 9·2 | 1 53 20·9 | ·0 |
| 13 | 16 21 43·64 | 19 44 43·6 | ·0279635 | 20 49·5 | 242 54 59·0 | 1 53 17·8 | ·0 |
| 14 | 16 22 7·31 | 19 45 35·1 | ·0274727 | 20 46·0 | 242 56 48·9 | 1 53 14·7 | ·0 |
| 15 | 16 22 30·73 | 19 46 25·8 | ·0269737 | 20 42·5 | 242 58 38·7 | 1 53 11·6 | ·0 |
| 16 | 16 22 53·90 | 19 47 15·6 | ·0264667 | 20 38·9 | 243 0 28·5 | 1 53 8·5 | ·0 |
| 17 | 16 23 16·81 | 19 48 4·4 | ·0259519 | 20 35·3 | 243 2 18·3 | 1 53 5·4 | ·0 |
| 18 | 16 23 39·47 | 19 48 52·3 | ·0254292 | 20 31·8 | 243 4 8·0 | 1 53 2·3 | ·0 |
| 19 | 16 24 1·86 | 19 49 39·3 | ·0248988 | 20 28·2 | 243 5 57·6 | 1 52 59·1 | ·0 |
| 20 | 16 24 23·98 | 19 50 25·3 | ·0243609 | 20 24·6 | 243 7 47·3 | 1 52 56·0 | ·0 |
| 21 | 16 24 45·84 | 19 51 10·4 | ·0238156 | 20 21·1 | 243 9 36·9 | 1 52 52·9 | ·0 |
| 22 | 16 25 7·42 | 19 51 54·5 | ·0232629 | 20 17·5 | 243 11 26·6 | 1 52 49·8 | ·0 |
| 23 | 16 25 28·72 | 19 52 37·7 | ·0227030 | 20 13·9 | 243 13 16·3 | 1 52 46·7 | ·0 |
| 24 | 16 25 49·74 | 19 53 19·9 | ·0221359 | 20 10·3 | 243 15 6·0 | 1 52 43·5 | ·0 |
| 25 | 16 26 10·48 | 19 54 1·2 | ·0215618 | 20 6·7 | 243 16 55·8 | 1 52 40·4 | ·0 |
| 26 | 16 26 30·93 | 19 54 41·7 | ·0209810 | 20 3·1 | 243 18 45·6 | 1 52 37·3 | ·0 |
| 27 | 16 26 51·09 | 19 55 21·3 | ·0203934 | 19 59·5 | 243 20 35·3 | 1 52 34·1 | ·0 |
| 28 | 16 27 10·94 | 19 55 59·9 | ·0197994 | 19 55·9 | 243 22 25·1 | 1 52 31·0 | ·0 |
| 29 | 16 27 30·47 | 19 56 37·5 | ·0191990 | 19 52·3 | 243 24 14·8 | 1 52 27·9 | ·0 |
| 30 | 16 27 49·69 | 19 57 14·2 | ·0185923 | 19 48·7 | 243 26 4·5 | 1 52 24·7 | ·0 |
| 31 | 16 28 8·60 | 19 57 50·0 | ·0179792 | 19 45·1 | 243 27 54·2 | 1 52 21·6 | ·0 |
| 32 | 16 28 27·20 | S. 19 58 24·9 | 1·0173600 | 19 41·4 | 243 29 43·8 | N. 1 52 18·5 | 1·0 |

# JANUARY, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 6 ·21 | + 1 ·09 | 0 ·53 | S. 19 34 11 ·3 | — 2 ·5 | 7 ·0 | 0 ·8 |
| 32 ·15 | 1 ·08 | 0 ·53 | 19 35 12 ·5 | 2 ·5 | 7 ·0 | 0 ·8 |
| 57 ·90 | 1 ·07 | 0 ·53 | 19 36 12 ·8 | 2 ·5 | 7 ·0 | 0 ·8 |
| 23 ·46 | 1 ·06 | 0 ·53 | 19 37 12 ·2 | 2 ·5 | 7 ·0 | 0 ·8 |
| 48 ·82 | 1 ·05 | 0 ·53 | 19 38 10 ·8 | 2 ·4 | 7 ·0 | 0 ·8 |
| 13 ·99 | 1 ·04 | 0 ·53 | 19 39 8 ·6 | 2 ·4 | 7 ·0 | 0 ·8 |
| 38 ·95 | 1 ·03 | 0 ·53 | 19 40 5 ·6 | 2 ·4 | 7 ·0 | 0 ·8 |
| 3 ·71 | 1 ·03 | 0 ·53 | 19 41 1 ·7 | 2 ·3 | 7 ·0 | 0 ·8 |
| 28 ·25 | 1 ·02 | 0 ·53 | 19 41 56 ·9 | 2 ·3 | 7 ·0 | 0 ·8 |
| 52 ·58 | 1 ·01 | 0 ·53 | 19 42 51 ·2 | 2 ·3 | 7 ·0 | 0 ·8 |
| 16 ·68 | 1 ·00 | 0 ·53 | 19 43 44 ·5 | 2 ·2 | 7 ·1 | 0 ·8 |
| 40 ·55 | 0 ·99 | 0 ·54 | 19 44 36 ·9 | 2 ·2 | 7 ·1 | 0 ·8 |
| 4 ·18 | 0 ·98 | 0 ·54 | 19 45 28 ·4 | 2 ·1 | 7 ·1 | 0 ·8 |
| 27 ·58 | 0 ·97 | 0 ·54 | 19 46 19 ·1 | 2 ·1 | 7 ·1 | 0 ·8 |
| 50 ·73 | 0 ·96 | 0 ·54 | 19 47 8 ·9 | 2 ·1 | 7 ·1 | 0 ·8 |
| 13 ·63 | 0 ·95 | 0 ·54 | 19 47 57 ·8 | 2 ·0 | 7 ·1 | 0 ·8 |
| 36 ·26 | 0 ·94 | 0 ·54 | 19 48 45 ·7 | 2 ·0 | 7 ·1 | 0 ·8 |
| 58 ·63 | 0 ·93 | 0 ·54 | 19 49 32 ·6 | 1 ·9 | 7 ·1 | 0 ·8 |
| 20 ·74 | 0 ·92 | 0 ·54 | 19 50 18 ·6 | 1 ·9 | 7 ·1 | 0 ·8 |
| 42 ·59 | 0 ·90 | 0 ·54 | 19 51 3 ·7 | 1 ·9 | 7 ·1 | 0 ·8 |
| 4 ·16 | 0 ·89 | 0 ·54 | 19 51 47 ·9 | 1 ·8 | 7 ·1 | 0 ·8 |
| 25 ·45 | 0 ·88 | 0 ·54 | 19 52 31 ·1 | 1 ·8 | 7 ·1 | 0 ·8 |
| 46 ·46 | 0 ·87 | 0 ·54 | 19 53 13 ·4 | 1 ·7 | 7 ·1 | 0 ·8 |
| 7 ·19 | 0 ·86 | 0 ·54 | 19 53 54 ·7 | 1 ·7 | 7 ·2 | 0 ·8 |
| 27 ·64 | 0 ·85 | 0 ·54 | 19 54 35 ·1 | 1 ·7 | 7 ·2 | 0 ·8 |
| 47 ·79 | 0 ·83 | 0 ·54 | 19 55 14 ·8 | 1 ·6 | 7 ·2 | 0 ·8 |
| 7 ·65 | 0 ·82 | 0 ·54 | 19 55 53 ·6 | 1 ·6 | 7 ·2 | 0 ·8 |
| 27 ·20 | 0 ·81 | 0 ·54 | 19 56 31 ·3 | 1 ·6 | 7 ·2 | 0 ·8 |
| 46 ·42 | 0 ·79 | 0 ·54 | 19 57 8 ·0 | 1 ·5 | 7 ·2 | 0 ·8 |
| 5 ·33 | 0 ·78 | 0 ·54 | 19 57 43 ·9 | 1 ·5 | 7 ·2 | 0 ·8 |
| 23 ·93 | 0 ·77 | 0 ·54 | 19 58 18 ·8 | 1 ·4 | 7 ·2 | 0 ·8 |
| 42 ·22 | + 0 ·76 | 0 ·54 | S. 19 58 52 ·9 | — 1 ·4 | 7 ·2 | 0 ·8 |

# FEBRUARY, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | No |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 16 28 27·20 | S. 19 58 24·9 | 1·0173600 | 19 41·4 | 243 29 43·8 | N. 1 52 18·5 | 1·000 |
| 2 | 16 28 45·48 | 19 58 58·8 | ·0167348 | 19 37·8 | 243 31 33·3 | 1 52 15·3 | ·000 |
| 3 | 16 29 3·44 | 19 59 31·8 | ·0161036 | 19 34·2 | 243 33 22·9 | 1 52 12·2 | ·000 |
| 4 | 16 29 21·06 | 20 0 3·8 | ·0154667 | 19 30·5 | 243 35 12·5 | 1 52 9·0 | ·000 |
| 5 | 16 29 38·36 | 20 0 34·8 | ·0148242 | 19 26·9 | 243 37 2·1 | 1 52 5·9 | ·000 |
| 6 | 16 29 55·33 | 20 1 4·9 | ·0141762 | 19 23·2 | 243 38 51·7 | 1 52 2·8 | ·000 |
| 7 | 16 30 11·96 | 20 1 34·1 | ·0135229 | 19 19·5 | 243 40 41·4 | 1 51 59·6 | ·000 |
| 8 | 16 30 28·25 | 20 2 2·3 | ·0128644 | 19 15·9 | 243 42 31·1 | 1 51 56·5 | ·000 |
| 9 | 16 30 44·18 | 20 2 29·6 | ·0122009 | 19 12·2 | 243 44 20·8 | 1 51 53·3 | ·000 |
| 10 | 16 30 59·75 | 20 2 56·0 | ·0115326 | 19 8·5 | 243 46 10·5 | 1 51 50·1 | ·000 |
| 11 | 16 31 14·96 | 20 3 21·5 | ·0108596 | 19 4·9 | 243 48 0·2 | 1 51 47·0 | ·000 |
| 12 | 16 31 29·81 | 20 3 46·1 | ·0101819 | 19 1·2 | 243 49 49·9 | 1 51 43·8 | ·000 |
| 13 | 16 31 44·30 | 20 4 9·7 | ·0094999 | 18 57·5 | 243 51 39·5 | 1 51 40·7 | ·000 |
| 14 | 16 31 58·42 | 20 4 32·3 | ·0088137 | 18 53·8 | 243 53 29·1 | 1 51 37·5 | ·000 |
| 15 | 16 32 12·16 | 20 4 54·0 | ·0081236 | 18 50·1 | 243 55 18·6 | 1 51 34·3 | ·000 |
| 16 | 16 32 25·52 | 20 5 14·7 | ·0074298 | 18 46·3 | 243 57 8·1 | 1 51 31·2 | ·000 |
| 17 | 16 32 38·50 | 20 5 34·5 | ·0067322 | 18 42·6 | 243 58 57·6 | 1 51 28·0 | ·000 |
| 18 | 16 32 51·11 | 20 5 53·4 | ·0060312 | 18 38·9 | 244 0 47·1 | 1 51 24·8 | ·000 |
| 19 | 16 33 3·33 | 20 6 11·3 | ·0053270 | 18 35·2 | 244 2 36·7 | 1 51 21·6 | ·000 |
| 20 | 16 33 15·16 | 20 6 28·3 | ·0046197 | 18 31·4 | 244 4 26·3 | 1 51 18·5 | ·000 |
| 21 | 16 33 26·60 | 20 6 44·3 | ·0039096 | 18 27·7 | 244 6 15·9 | 1 51 15·3 | ·000 |
| 22 | 16 33 37·66 | 20 6 59·5 | ·0031969 | 18 23·9 | 244 8 5·6 | 1 51 12·1 | ·000 |
| 23 | 16 33 48·32 | 20 7 13·8 | ·0024816 | 18 20·2 | 244 9 55·2 | 1 51 9·0 | ·000 |
| 24 | 16 33 58·58 | 20 7 27·2 | ·0017640 | 18 16·4 | 244 11 44·9 | 1 51 5·8 | ·000 |
| 25 | 16 34 8·44 | 20 7 39·7 | ·0010444 | 18 12·6 | 244 13 34·5 | 1 51 2·6 | ·000 |
| 26 | 16 34 17·91 | 20 7 51·4 | 1·0003228 | 18 8·8 | 244 15 24·0 | 1 50 59·4 | ·000 |
| 27 | 16 34 26·97 | 20 8 2·2 | 0·9995996 | 18 5·0 | 244 17 13·5 | 1 50 56·2 | ·000 |
| 28 | 16 34 35·62 | 20 8 12·0 | ·9988749 | 18 1·2 | 244 19 3·0 | 1 50 53·1 | ·000 |
| 29 | 16 34 43·87 | S. 20 8 20·8 | 0·9981487 | 17 57·4 | 244 20 52·5 | N. 1 50 49·9 | 1·000 |

# FEBRUARY, 1839.

At Transit over the Meridian of Greenwich.

| *parent* Right ension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 8 42 ·22 | + 0 ·76 | 0 ·54 | S.19 58 52 ·9 | — 1 ·4 | 7 ·2 | 0 ·8 |
| 9 0 ·19 | 0 ·74 | 0 ·54 | 19 59 25 ·9 | 1 ·4 | 7 ·2 | 0 ·8 |
| 9 17 ·84 | 0 ·73 | 0 ·55 | 19 59 58 ·0 | 1 ·3 | 7 ·3 | 0 ·8 |
| 9 35 ·15 | 0 ·71 | 0 ·55 | 20 0 29 ·2 | 1 ·3 | 7 ·3 | 0 ·8 |
| 9 52 ·13 | 0 ·70 | 0 ·55 | 20 0 59 ·3 | 1 ·2 | 7 ·3 | 0 ·8 |
| 10 8 ·78 | 0 ·68 | 0 ·55 | 20 1 28 ·5 | 1 ·2 | 7 ·3 | 0 ·8 |
| 10 25 ·10 | 0 ·67 | 0 ·55 | 20 1 56 ·9 | 1 ·2 | 7 ·3 | 0 ·8 |
| 10 41 ·07 | 0 ·66 | 0 ·55 | 20 2 24 ·3 | 1 ·1 | 7 ·3 | 0 ·8 |
| 10 56 ·67 | 0 ·64 | 0 ·55 | 20 2 50 ·8 | 1 ·1 | 7 ·3 | 0 ·8 |
| 11 11 ·91 | 0 ·63 | 0 ·55 | 20 3 16 ·4 | 1 ·0 | 7 ·3 | 0 ·8 |
| 11 26 ·79 | 0 ·61 | 0 ·55 | 20 3 41 ·2 | 1 ·0 | 7 ·4 | 0 ·8 |
| 11 41 ·32 | 0 ·60 | 0 ·55 | 20 4 5 ·0 | 1 ·0 | 7 ·4 | 0 ·8 |
| 11 55 ·48 | 0 ·58 | 0 ·55 | 20 4 27 ·7 | 0 ·9 | 7 ·4 | 0 ·8 |
| 12 9 ·27 | 0 ·57 | 0 ·55 | 20 4 49 ·5 | 0 ·9 | 7 ·4 | 0 ·8 |
| 12 22 ·68 | 0 ·55 | 0 ·55 | 20 5 10 ·4 | 0 ·9 | 7 ·4 | 0 ·8 |
| 12 35 ·71 | 0 ·54 | 0 ·56 | 20 5 30 ·3 | 0 ·8 | 7 ·4 | 0 ·8 |
| 12 48 ·36 | 0 ·52 | 0 ·56 | 20 5 49 ·3 | 0 ·8 | 7 ·4 | 0 ·8 |
| 13 0 ·64 | 0 ·51 | 0 ·56 | 20 6 7 ·4 | 0 ·7 | 7 ·4 | 0 ·8 |
| 13 12 ·53 | 0 ·49 | 0 ·56 | 20 6 24 ·5 | 0 ·7 | 7 ·5 | 0 ·8 |
| 13 24 ·03 | 0 ·48 | 0 ·56 | 20 6 40 ·7 | 0 ·7 | 7 ·5 | 0 ·8 |
| 13 35 ·14 | 0 ·46 | 0 ·56 | 20 6 56 ·0 | 0 ·6 | 7 ·5 | 0 ·8 |
| 13 45 ·87 | 0 ·44 | 0 ·56 | 20 7 10 ·5 | 0 ·6 | 7 ·5 | 0 ·9 |
| 13 56 ·20 | 0 ·42 | 0 ·56 | 20 7 24 ·1 | 0 ·5 | 7 ·5 | 0 ·9 |
| 14 6 ·13 | 0 ·41 | 0 ·56 | 20 7 36 ·8 | 0 ·5 | 7 ·5 | 0 ·9 |
| 14 15 ·66 | 0 ·39 | 0 ·57 | 20 7 48 ·6 | 0 ·5 | 7 ·5 | 0 ·9 |
| 14 24 ·80 | 0 ·37 | 0 ·57 | 20 7 59 ·6 | 0 ·4 | 7 ·5 | 0 ·9 |
| 14 33 ·53 | 0 ·36 | 0 ·57 | 20 8 9 ·6 | 0 ·4 | 7 ·5 | 0 ·9 |
| 14 41 ·85 | 0 ·34 | 0 ·57 | 20 8 18 ·7 | 0 ·4 | 7 ·6 | 0 ·9 |
| 14 49 ·77 | + 0 ·32 | 0 ·57 | S.20 8 26 ·8 | — 0 ·3 | 7 ·6 | 0 ·9 |

# MARCH, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Lo Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | N |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 16 34 43·87 | S. 20 8 20·8 | 0·9981487 | 17 57·4 | 244 20 52·5 | N. 1 50 49·9 | 1·00 |
| 2 | 16 34 51·70 | 20 8 28·7 | ·9974212 | 17 53·6 | 244 22 42·0 | 1 50 46·7 | ·00 |
| 3 | 16 34 59·12 | 20 8 35·8 | ·9966928 | 17 49·8 | 244 24 31·4 | 1 50 43·5 | ·00 |
| 4 | 16 35 6·14 | 20 8 42·0 | ·9959636 | 17 46·0 | 244 26 20·9 | 1 50 40·3 | ·00 |
| 5 | 16 35 12·75 | 20 8 47·3 | ·9952338 | 17 42·2 | 244 28 10·4 | 1 50 37·1 | ·00 |
| 6 | 16 35 18·94 | 20 8 51·7 | ·9945037 | 17 38·3 | 244 29 59·9 | 1 50 33·9 | ·00 |
| 7 | 16 35 24·71 | 20 8 55·2 | ·9937734 | 17 34·5 | 244 31 49·5 | 1 50 30·7 | ·00 |
| 8 | 16 35 30·06 | 20 8 57·9 | ·9930431 | 17 30·7 | 244 33 39·1 | 1 50 27·5 | ·00 |
| 9 | 16 35 35·00 | 20 8 59·7 | ·9923132 | 17 26·8 | 244 35 28·7 | 1 50 24·3 | ·00 |
| 10 | 16 35 39·51 | 20 9 0·7 | ·9915836 | 17 22·9 | 244 37 18·3 | 1 50 21·1 | ·00 |
| 11 | 16 35 43·59 | 20 9 0·8 | ·9908548 | 17 19·1 | 244 39 7·9 | 1 50 17·9 | ·00 |
| 12 | 16 35 47·24 | 20 9 0·0 | ·9901270 | 17 15·2 | 244 40 57·4 | 1 50 14·7 | ·00 |
| 13 | 16 35 50·47 | 20 8 58·3 | ·9894003 | 17 11·3 | 244 42 46·9 | 1 50 11·5 | ·00 |
| 14 | 16 35 53·26 | 20 8 55·8 | ·9886749 | 17 7·4 | 244 44 36·4 | 1 50 8·3 | ·00 |
| 15 | 16 35 55·62 | 20 8 52·4 | ·9879513 | 17 3·5 | 244 46 25·8 | 1 50 5·0 | ·00 |
| 16 | 16 35 57·57 | 20 8 48·2 | ·9872294 | 16 59·6 | 244 48 15·1 | 1 50 1·8 | ·00 |
| 17 | 16 35 59·09 | 20 8 43·1 | ·9865098 | 16 55·7 | 244 50 4·5 | 1 49 58·6 | ·00 |
| 18 | 16 36 0·18 | 20 8 37·1 | ·9857927 | 16 51·8 | 244 51 54·0 | 1 49 55·4 | ·00 |
| 19 | 16 36 0·84 | 20 8 30·3 | ·9850781 | 16 47·9 | 244 53 43·5 | 1 49 52·2 | ·00 |
| 20 | 16 36 1·08 | 20 8 22·7 | ·9843663 | 16 44·0 | 244 55 33·0 | 1 49 48·9 | ·00 |
| 21 | 16 36 0·90 | 20 8 14·3 | ·9836578 | 16 40·0 | 244 57 22·6 | 1 49 45·7 | ·00 |
| 22 | 16 36 0·30 | 20 8 5·2 | ·9829525 | 16 36·0 | 244 59 12·1 | 1 49 42·5 | ·00 |
| 23 | 16 35 59·27 | 20 7 55·2 | ·9822509 | 16 32·1 | 245 1 1·7 | 1 49 39·3 | ·00 |
| 24 | 16 35 57·83 | 20 7 44·4 | ·9815532 | 16 28·1 | 245 2 51·2 | 1 49 36·0 | ·00 |
| 25 | 16 35 55·96 | 20 7 32·9 | ·9808594 | 16 24·2 | 245 4 40·7 | 1 49 32·8 | ·00 |
| 26 | 16 35 53·68 | 20 7 20·6 | ·9801699 | 16 20·2 | 245 6 30·2 | 1 49 29·6 | ·00 |
| 27 | 16 35 50·98 | 20 7 7·5 | ·9794850 | 16 16·2 | 245 8 19·6 | 1 49 26·3 | ·00 |
| 28 | 16 35 47·86 | 20 6 53·6 | ·9788047 | 16 12·2 | 245 10 9·0 | 1 49 23·1 | ·00 |
| 29 | 16 35 44·33 | 20 6 38·9 | ·9781292 | 16 8·2 | 245 11 58·3 | 1 49 19·9 | ·00 |
| 30 | 16 35 40·39 | 20 6 23·4 | ·9774590 | 16 4·2 | 245 13 47·7 | 1 49 16·6 | ·00 |
| 31 | 16 35 36·04 | 20 6 7·1 | ·9767941 | 16 0·2 | 245 15 37·1 | 1 49 13·4 | ·00 |
| 32 | 16 35 31·29 | S. 20 5 50·1 | 0·9761348 | 15 56·2 | 245 17 26·5 | N. 1 49 10·1 | 1·00 |

# MARCH, 1839.

At Transit over the Meridian of Greenwich.

| *parent* ight ension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 4 49 ·77 | + 0 ·32 | 0 ·57 | S. 20 8 26 ·8 | — 0 ·3 | 7 ·6 | 0 ·9 |
| 4 57 ·27 | 0 ·30 | 0 ·57 | 20 8 34 ·0 | 0 ·3 | 7 ·6 | 0 ·9 |
| 5 4 ·37 | 0 ·29 | 0 ·57 | 20 8 40 ·4 | 0 ·3 | 7 ·6 | 0 ·9 |
| 5 11 ·07 | 0 ·27 | 0 ·57 | 20 8 46 ·0 | 0 ·2 | 7 ·6 | 0 ·9 |
| 5 17 ·35 | 0 ·26 | 0 ·58 | 20 8 50 ·6 | 0 ·2 | 7 ·6 | 0 ·9 |
| 5 23 ·22 | 0 ·24 | 0 ·58 | 20 8 54 ·4 | 0 ·1 | 7 ·6 | 0 ·9 |
| 5 28 ·67 | 0 ·22 | 0 ·58 | 20 8 57 ·3 | 0 ·1 | 7 ·6 | 0 ·9 |
| 5 33 ·70 | 0 ·20 | 0 ·58 | 20 8 59 ·3 | — 0 ·1 | 7 ·7 | 0 ·9 |
| 5 38 ·32 | 0 ·18 | 0 ·58 | 20 9 0 ·5 | 0 ·0 | 7 ·7 | 0 ·9 |
| 5 42 ·51 | 0 ·17 | 0 ·58 | 20 9 0 ·9 | 0 ·0 | 7 ·7 | 0 ·9 |
| 5 46 ·27 | 0 ·15 | 0 ·58 | 20 9 0 ·3 | 0 ·0 | 7 ·7 | 0 ·9 |
| 5 49 ·60 | 0 ·13 | 0 ·58 | 20 8 58 ·9 | + 0 ·1 | 7 ·7 | 0 ·9 |
| 5 52 ·51 | 0 ·11 | 0 ·58 | 20 8 56 ·6 | 0 ·1 | 7 ·7 | 0 ·9 |
| 5 54 ·99 | 0 ·09 | 0 ·58 | 20 8 53 ·5 | 0 ·1 | 7 ·7 | 0 ·9 |
| 5 57 ·05 | 0 ·08 | 0 ·58 | 20 8 49 ·5 | 0 ·2 | 7 ·7 | 0 ·9 |
| 5 58 ·69 | 0 ·06 | 0 ·58 | 20 8 44 ·7 | 0 ·2 | 7 ·8 | 0 ·9 |
| 5 59 ·90 | 0 ·04 | 0 ·59 | 20 8 39 ·0 | 0 ·3 | 7 ·8 | 0 ·9 |
| 6 0 ·69 | 0 ·02 | 0 ·59 | 20 8 32 ·5 | 0 ·3 | 7 ·8 | 0 ·9 |
| 6 1 ·05 | + 0 ·01 | 0 ·59 | 20 8 25 ·1 | 0 ·3 | 7 ·8 | 0 ·9 |
| 6 0 ·99 | — 0 ·01 | 0 ·59 | 20 8 16 ·9 | 0 ·4 | 7 ·8 | 0 ·9 |
| 6 0 ·52 | 0 ·03 | 0 ·59 | 20 8 8 ·0 | 0 ·4 | 7 ·8 | 0 ·9 |
| 5 59 ·63 | 0 ·05 | 0 ·60 | 20 7 58 ·4 | 0 ·4 | 7 ·8 | 0 ·9 |
| 5 58 ·32 | 0 ·06 | 0 ·60 | 20 7 47 ·9 | 0 ·5 | 7 ·8 | 0 ·9 |
| 5 56 ·59 | 0 ·08 | 0 ·60 | 20 7 36 ·7 | 0 ·5 | 7 ·9 | 0 ·9 |
| 5 54 ·44 | 0 ·10 | 0 ·60 | 20 7 24 ·6 | 0 ·5 | 7 ·9 | 0 ·9 |
| 5 51 ·88 | 0 ·12 | 0 ·60 | 20 7 11 ·8 | 0 ·6 | 7 ·9 | 0 ·9 |
| 5 48 ·91 | 0 ·13 | 0 ·60 | 20 6 58 ·2 | 0 ·6 | 7 ·9 | 0 ·9 |
| 5 45 ·52 | 0 ·15 | 0 ·60 | 20 6 43 ·8 | 0 ·6 | 7 ·9 | 0 ·9 |
| 5 41 ·72 | 0 ·17 | 0 ·60 | 20 6 28 ·6 | 0 ·6 | 7 ·9 | 0 ·9 |
| 5 37 ·52 | 0 ·18 | 0 ·61 | 20 6 12 ·7 | 0 ·7 | 7 ·9 | 0 ·9 |
| 5 32 ·91 | 0 ·20 | 0 ·61 | 20 5 55 ·9 | 0 ·7 | 7 ·9 | 0 ·9 |
| 5 27 ·91 | — 0 ·22 | 0 ·61 | S. 20 5 38 ·4 | + 0 ·7 | 7 ·9 | 0 ·9 |

# MARCH, 1839.

| Day of the Month. | Geocentric. Apparent Right Ascension. Noon. | Geocentric. Apparent Declination. Noon. | Log. of True Dist from the F | Meridian Passage. | Heliocentric. Longitude. Noon. | Heliocentric. Latitude. Noon. | Log Rad. |
|---|---|---|---|---|---|---|---|
| | h m s | ° ′ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 16 34 43·87 | S. 20 8 | 9748815 | 15 52·2 | 245 19 15·9 | 1 49 6·9 | ·00 |
| 2 | 16 34 51·70 | 20 | 9748341 | 15 48·2 | 245 21 5·4 | 1 49 3·7 | ·00 |
| 3 | 16 34 59·12 | 20 | ·9741930 | 15 44·1 | 245 22 54·9 | 1 49 0·4 | ·00 |
| 4 | 16 35 6·14 | | ·9735586 | 15 40·1 | 245 24 44·4 | 1 48 57·1 | ·00 |
| 5 | 16 35 12·75 | | ·9729308 | 15 36·0 | 245 26 34·0 | 1 48 53·9 | ·00 |
| 6 | 16 35 18· | | ·9723099 | 15 32·0 | 245 28 23·5 | 1 48 50·6 | ·00 |
| 7 | 16 35 | | ·9716964 | 15 27·9 | 245 30 12·9 | 1 48 47·4 | ·00 |
| 8 | 16 35 | | ·9710903 | 15 23·9 | 245 32 2·4 | 1 48 44·1 | ·00 |
| 9 | 16 3 | | ·9704920 | 15 19·8 | 245 33 51·8 | 1 48 40·9 | ·00 |
| 10 | 16 | 20 2 20·7 | ·9699018 | 15 15·7 | 245 35 41·1 | 1 48 37·6 | ·00 |
| 11 | 1 | 20 1 55·9 | ·9693197 | 15 11·6 | 245 37 30·5 | 1 48 34·3 | ·00 |
| 12 | | 20 1 30·4 | ·9687460 | 15 7·5 | 245 39 19·8 | 1 48 31·1 | ·00 |
| 13 | | 20 1 4·3 | ·9681811 | 15 3·4 | 245 41 9·1 | 1 48 27·8 | ·00 |
| 14 | | 20 0 37·5 | ·9676250 | 14 59·3 | 245 42 58·5 | 1 48 24·5 | ·00 |
| 15 | 16 33 33·31 | 20 0 10·1 | ·9670782 | 14 55·2 | 245 44 48·0 | 1 48 21·3 | ·00 |
| 16 | 16 33 22·50 | 19 59 42·1 | ·9665409 | 14 51·1 | 245 46 37·5 | 1 48 18·0 | ·00 |
| 17 | 16 33 11·35 | 19 59 13·5 | ·9660131 | 14 47·0 | 245 48 27·0 | 1 48 14·7 | ·00 |
| 18 | 16 32 59·87 | 19 58 44·4 | ·9654950 | 14 42·9 | 245 50 16·5 | 1 48 11·5 | ·00 |
| 19 | 16 32 48·06 | 19 58 14·7 | ·9649871 | 14 38·7 | 245 52 6·0 | 1 48 8·2 | ·00 |
| 20 | 16 32 35·93 | 19 57 44·4 | ·9644893 | 14 34·6 | 245 53 55·4 | 1 48 4·9 | ·00 |
| 21 | 16 32 23·48 | 19 57 13·5 | ·9640020 | 14 30·4 | 245 55 44·8 | 1 48 1·6 | ·00 |
| 22 | 16 32 10·73 | 19 56 42·1 | ·9635254 | 14 26·3 | 245 57 34·2 | 1 47 58·3 | ·00 |
| 23 | 16 31 57·67 | 19 56 10·2 | ·9630594 | 14 22·1 | 245 59 23·5 | 1 47 55·1 | ·00 |
| 24 | 16 31 44·31 | 19 55 37·8 | ·9626043 | 14 18·0 | 246 1 12·9 | 1 47 51·8 | ·00 |
| 25 | 16 31 30·66 | 19 55 4·9 | ·9621603 | 14 13·8 | 246 3 2·2 | 1 47 48·5 | ·00 |
| 26 | 16 31 16·74 | 19 54 31·4 | ·9617275 | 14 9·7 | 246 4 51·5 | 1 47 45·2 | ·00 |
| 27 | 16 31 2·54 | 19 53 57·5 | ·9613062 | 14 5·5 | 246 6 40·8 | 1 47 41·9 | ·00 |
| 28 | 16 30 48·07 | 19 53 23·1 | ·9608966 | 14 1·3 | 246 8 30·2 | 1 47 38·6 | ·00 |
| 29 | 16 30 33·35 | 19 52 48·3 | ·9604987 | 13 57·1 | 246 10 19·6 | 1 47 35·3 | ·00 |
| 30 | 16 30 18·38 | S. 19 52 13·0 | 0·9601128 | 13 52·9 | 246 12 9·1 | N. 1 47 32·0 | 1·00 |
| 31 | | | | | | | |

# APRIL, 1839.

At Transit over the Meridian of Greenwich.

| ion. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 27·91 | − 0·22 | 0·61 | S. 20 5 38·4 | + 0·7 | 7·9 | 0·9 |
| 22·51 | 0·23 | 0·61 | 20 5 20·3 | 0·8 | 8·0 | 0·9 |
| 16·72 | 0·25 | 0·61 | 20 5 1·4 | 0·8 | 8·0 | 0·9 |
| 10·54 | 0·26 | 0·61 | 20 4 41·8 | 0·8 | 8·0 | 0·9 |
| 3·97 | 0·28 | 0·61 | 20 4 21·5 | 0·9 | 8·0 | 0·9 |
| 57·00 | 0·29 | 0·61 | 20 4 0·5 | 0·9 | 8·0 | 0·9 |
| 49·64 | 0·31 | 0·61 | 20 3 38·8 | 0·9 | 8·0 | 0·9 |
| 41·89 | 0·33 | 0·61 | 20 3 16·4 | 0·9 | 8·0 | 0·9 |
| 33·76 | 0·34 | 0·61 | 20 2 53·3 | 1·0 | 8·1 | 0·9 |
| 25·25 | 0·36 | 0·61 | 20 2 29·5 | 1·0 | 8·1 | 0·9 |
| 16·38 | 0·38 | 0·61 | 20 2 5·1 | 1·0 | 8·1 | 0·9 |
| 7·14 | 0·39 | 0·61 | 20 1 39·9 | 1·1 | 8·1 | 0·9 |
| 57·54 | 0·41 | 0·61 | 20 1 14·1 | 1·1 | 8·1 | 0·9 |
| 47·58 | 0·42 | 0·61 | 20 0 47·6 | 1·1 | 8·1 | 0·9 |
| 37·28 | 0·44 | 0·61 | 20 0 20·5 | 1·1 | 8·1 | 0·9 |
| 26·63 | 0·45 | 0·61 | 19 59 52·9 | 1·2 | 8·1 | 0·9 |
| 15·64 | 0·46 | 0·62 | 19 59 24·6 | 1·2 | 8·1 | 0·9 |
| 4·32 | 0·48 | 0·62 | 19 58 55·7 | 1·2 | 8·1 | 0·9 |
| 52·67 | 0·49 | 0·62 | 19 58 26·3 | 1·2 | 8·1 | 0·9 |
| 40·70 | 0·51 | 0·62 | 19 57 56·3 | 1·3 | 8·2 | 0·9 |
| 28·41 | 0·52 | 0·62 | 19 57 25·7 | 1·3 | 8·2 | 0·9 |
| 15·81 | 0·53 | 0·62 | 19 56 54·6 | 1·3 | 8·2 | 0·9 |
| 2·91 | 0·55 | 0·62 | 19 56 23·0 | 1·3 | 8·2 | 0·9 |
| 49·71 | 0·56 | 0·62 | 19 55 50·9 | 1·3 | 8·2 | 0·9 |
| 36·22 | 0·57 | 0·62 | 19 55 18·3 | 1·4 | 8·2 | 0·9 |
| 22·45 | 0·58 | 0·62 | 19 54 45·1 | 1·4 | 8·2 | 0·9 |
| 8·40 | 0·59 | 0·62 | 19 54 11·4 | 1·4 | 8·2 | 0·9 |
| 54·09 | 0·60 | 0·62 | 19 53 37·3 | 1·4 | 8·2 | 0·9 |
| 39·51 | 0·61 | 0·62 | 19 53 2·8 | 1·4 | 8·2 | 0·9 |
| 24·68 | 0·62 | 0·62 | 19 52 27·8 | 1·5 | 8·3 | 0·9 |
| 9·61 | − 0·63 | 0·62 | S. 19 51 52·4 | + 1·5 | 8·3 | 0·9 |

# MAY, 1839.

At Transit over the Meridian of Greenwich.

| | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|---|
| | h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| | 16 30 9·61 | − 0·63 | 0·62 | S. 19 51 52·4 | + 1·5 | 8·3 | 0·9 |
| | 16 29 54·30 | 0·64 | 0·62 | 19 51 16·5 | 1·5 | 8·3 | 0·9 |
| | 16 29 38·75 | 0·65 | 0·62 | 19 50 40·2 | 1·5 | 8·3 | 0·9 |
| | 16 29 22·97 | 0·66 | 0·62 | 19 50 3·6 | 1·5 | 8·3 | 0·9 |
| | 16 29 6·96 | 0·67 | 0·62 | 19 49 26·6 | 1·5 | 8·3 | 0·9 |
| | 16 28 50·74 | 0·68 | 0·62 | 19 48 49·3 | 1·6 | 8·3 | 0·9 |
| | 16 28 34·32 | 0·69 | 0·62 | 19 48 11·6 | 1·6 | 8·3 | 0·9 |
| | 16 28 17·70 | 0·70 | 0·62 | 19 47 33·6 | 1·6 | 8·3 | 0·9 |
| | 16 28 0·90 | 0·70 | 0·62 | 19 46 55·3 | 1·6 | 8·3 | 0·9 |
| | 16 27 43·92 | 0·71 | 0·62 | 19 46 16·7 | 1·6 | 8·3 | 0·9 |
| | 16 27 26·76 | 0·72 | 0·62 | 19 45 37·7 | 1·6 | 8·3 | 1·0 |
| 2 | 16 27 9·44 | 0·72 | 0·62 | 19 44 58·5 | 1·7 | 8·3 | 1·0 |
| 3 | 16 26 51·97 | 0·73 | 0·62 | 19 44 19·1 | 1·7 | 8·3 | 1·0 |
| 4 | 16 26 34·37 | 0·74 | 0·62 | 19 43 39·6 | 1·7 | 8·3 | 1·0 |
| 5 | 16 26 16·64 | 0·74 | 0·62 | 19 42 59·8 | 1·7 | 8·3 | 1·0 |
| 6 | 16 25 58·79 | 0·75 | 0·62 | 19 42 19·9 | 1·7 | 8·3 | 1·0 |
| 7 | 16 25 40·83 | 0·75 | 0·62 | 19 41 39·9 | 1·7 | 8·3 | 1·0 |
| 8 | 16 25 22·76 | 0·75 | 0·63 | 19 40 59·7 | 1·7 | 8·3 | 1·0 |
| 9 | 16 25 4·60 | 0·76 | 0·63 | 19 40 19·4 | 1·7 | 8·3 | 1·0 |
| 0 | 16 24 46·35 | 0·76 | 0·63 | 19 39 39·1 | 1·7 | 8·3 | 1·0 |
| 1 | 16 24 28·01 | 0·77 | 0·63 | 19 38 58·7 | 1·7 | 8·3 | 1·0 |
| 2 | 16 24 9·61 | 0·77 | 0·63 | 19 38 18·2 | 1·7 | 8·3 | 1·0 |
| 3 | 16 23 51·16 | 0·77 | 0·63 | 19 37 37·7 | 1·7 | 8·3 | 1·0 |
| 4 | 16 23 32·67 | 0·77 | 0·63 | 19 36 57·1 | 1·7 | 8·3 | 1·0 |
| 5 | 16 23 14·14 | 0·77 | 0·63 | 19 36 16·5 | 1·7 | 8·3 | 1·0 |
| 6 | 16 22 55·58 | 0·77 | 0·63 | 19 35 36·1 | 1·7 | 8·3 | 1·0 |
| 7 | 16 22 37·00 | 0·77 | 0·63 | 19 34 55·7 | 1·7 | 8·3 | 1·0 |
| | 16 22 18·41 | 0·77 | 0·63 | 19 34 15·3 | 1·7 | 8·3 | 1·0 |
| | 16 21 59·83 | 0·77 | 0·63 | 19 33 35·1 | 1·7 | 8·3 | 1·0 |
| | 16 21 41·25 | 0·77 | 0·63 | 19 32 55·0 | 1·7 | 8·3 | 1·0 |
| | 16 21 22·68 | 0·77 | 0·63 | 19 32 15·0 | 1·7 | 8·3 | 1·0 |
| | 16 21 4·14 | − 0·77 | 0·63 | S. 19 31 35·2 | + 1·7 | 8·3 | 1·0 |

# FEBRUARY, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | R |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 16 28 27·20 | S. 19 58 24·9 | 1·0173600 | 19 41·4 | 243 29 43·8 | N. 1 52 18·5 | 1·0 |
| 2 | 16 28 45·48 | 19 58 58·8 | ·0167348 | 19 37·8 | 243 31 33·3 | 1 52 15·3 | ·0 |
| 3 | 16 29 3·44 | 19 59 31·8 | ·0161036 | 19 34·2 | 243 33 22·9 | 1 52 12·2 | ·0 |
| 4 | 16 29 21·06 | 20 0 3·8 | ·0154667 | 19 30·5 | 243 35 12·5 | 1 52 9·0 | ·0 |
| 5 | 16 29 38·36 | 20 0 34·8 | ·0148242 | 19 26·9 | 243 37 2·1 | 1 52 5·9 | ·0 |
| 6 | 16 29 55·33 | 20 1 4·9 | ·0141762 | 19 23·2 | 243 38 51·7 | 1 52 2·8 | ·0 |
| 7 | 16 30 11·96 | 20 1 34·1 | ·0135229 | 19 19·5 | 243 40 41·4 | 1 51 59·6 | ·0 |
| 8 | 16 30 28·25 | 20 2 2·3 | ·0128644 | 19 15·9 | 243 42 31·1 | 1 51 56·5 | ·0 |
| 9 | 16 30 44·18 | 20 2 29·6 | ·0122009 | 19 12·2 | 243 44 20·8 | 1 51 53·3 | ·0 |
| 10 | 16 30 59·75 | 20 2 56·0 | ·0115326 | 19 8·5 | 243 46 10·5 | 1 51 50·1 | ·0 |
| 11 | 16 31 14·96 | 20 3 21·5 | ·0108596 | 19 4·9 | 243 48 0·2 | 1 51 47·0 | ·0 |
| 12 | 16 31 29·81 | 20 3 46·1 | ·0101819 | 19 1·2 | 243 49 49·9 | 1 51 43·8 | ·0 |
| 13 | 16 31 44·30 | 20 4 9·7 | ·0094999 | 18 57·5 | 243 51 39·5 | 1 51 40·7 | ·0 |
| 14 | 16 31 58·42 | 20 4 32·3 | ·0088137 | 18 53·8 | 243 53 29·1 | 1 51 37·5 | ·0 |
| 15 | 16 32 12·16 | 20 4 54·0 | ·0081236 | 18 50·1 | 243 55 18·6 | 1 51 34·3 | ·0 |
| 16 | 16 32 25·52 | 20 5 14·7 | ·0074298 | 18 46·3 | 243 57 8·1 | 1 51 31·2 | ·0 |
| 17 | 16 32 38·50 | 20 5 34·5 | ·0067322 | 18 42·6 | 243 58 57·6 | 1 51 28·0 | ·0 |
| 18 | 16 32 51·11 | 20 5 53·4 | ·0060312 | 18 38·9 | 244 0 47·1 | 1 51 24·8 | ·0 |
| 19 | 16 33 3·33 | 20 6 11·3 | ·0053270 | 18 35·2 | 244 2 36·7 | 1 51 21·6 | ·0 |
| 20 | 16 33 15·16 | 20 6 28·3 | ·0046197 | 18 31·4 | 244 4 26·3 | 1 51 18·5 | ·0 |
| 21 | 16 33 26·60 | 20 6 44·3 | ·0039096 | 18 27·7 | 244 6 15·9 | 1 51 15·3 | ·0 |
| 22 | 16 33 37·66 | 20 6 59·5 | ·0031969 | 18 23·9 | 244 8 5·6 | 1 51 12·1 | ·0 |
| 23 | 16 33 48·32 | 20 7 13·8 | ·0024816 | 18 20·2 | 244 9 55·2 | 1 51 9·0 | ·0 |
| 24 | 16 33 58·58 | 20 7 27·2 | ·0017640 | 18 16·4 | 244 11 44·9 | 1 51 5·8 | ·0 |
| 25 | 16 34 8·44 | 20 7 39·7 | ·0010444 | 18 12·6 | 244 13 34·5 | 1 51 2·6 | ·0 |
| 26 | 16 34 17·91 | 20 7 51·4 | 1·0003228 | 18 8·8 | 244 15 24·0 | 1 50 59·4 | ·0 |
| 27 | 16 34 26·97 | 20 8 2·2 | 0·9995996 | 18 5·0 | 244 17 13·5 | 1 50 56·2 | ·0 |
| 28 | 16 34 35·62 | 20 8 12·0 | ·9988749 | 18 1·2 | 244 19 3·0 | 1 50 53·1 | ·0 |
| 29 | 16 34 43·87 | S. 20 8 20·8 | 0·9981487 | 17 57·4 | 244 20 52·5 | N. 1 50 49·9 | 1·0 |

# MAY, 1839.

At Transit over the Meridian of Greenwich.

| Apparent Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | Apparent Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 30 9·61 | − 0·63 | 0·62 | S. 19 51 52·4 | + 1·5 | 8·3 | 0·9 |
| 29 54·30 | 0·64 | 0·62 | 19 51 16·5 | 1·5 | 8·3 | 0·9 |
| 29 38·75 | 0·65 | 0·62 | 19 50 40·2 | 1·5 | 8·3 | 0·9 |
| 29 22·97 | 0·66 | 0·62 | 19 50 3·6 | 1·5 | 8·3 | 0·9 |
| 29 6·96 | 0·67 | 0·62 | 19 49 26·6 | 1·5 | 8·3 | 0·9 |
| 28 50·74 | 0·68 | 0·62 | 19 48 49·3 | 1·6 | 8·3 | 0·9 |
| 28 34·32 | 0·69 | 0·62 | 19 48 11·6 | 1·6 | 8·3 | 0·9 |
| 28 17·70 | 0·70 | 0·62 | 19 47 33·6 | 1·6 | 8·3 | 0·9 |
| 28 0·90 | 0·70 | 0·62 | 19 46 55·3 | 1·6 | 8·3 | 0·9 |
| 27 43·92 | 0·71 | 0·62 | 19 46 16·7 | 1·6 | 8·3 | 0·9 |
| 27 26·76 | 0·72 | 0·62 | 19 45 37·7 | 1·6 | 8·3 | 1·0 |
| 27 9·44 | 0·72 | 0·62 | 19 44 58·5 | 1·7 | 8·3 | 1·0 |
| 26 51·97 | 0·73 | 0·62 | 19 44 19·1 | 1·7 | 8·3 | 1·0 |
| 26 34·37 | 0·74 | 0·62 | 19 43 39·6 | 1·7 | 8·3 | 1·0 |
| 26 16·64 | 0·74 | 0·62 | 19 42 59·8 | 1·7 | 8·3 | 1·0 |
| 25 58·79 | 0·75 | 0·62 | 19 42 19·9 | 1·7 | 8·3 | 1·0 |
| 25 40·83 | 0·75 | 0·62 | 19 41 39·9 | 1·7 | 8·3 | 1·0 |
| 25 22·76 | 0·75 | 0·63 | 19 40 59·7 | 1·7 | 8·3 | 1·0 |
| 25 4·60 | 0·76 | 0·63 | 19 40 19·4 | 1·7 | 8·3 | 1·0 |
| 24 46·35 | 0·76 | 0·63 | 19 39 39·1 | 1·7 | 8·3 | 1·0 |
| 24 28·01 | 0·77 | 0·63 | 19 38 58·7 | 1·7 | 8·3 | 1·0 |
| 24 9·61 | 0·77 | 0·63 | 19 38 18·2 | 1·7 | 8·3 | 1·0 |
| 23 51·16 | 0·77 | 0·63 | 19 37 37·7 | 1·7 | 8·3 | 1·0 |
| 23 32·67 | 0·77 | 0·63 | 19 36 57·1 | 1·7 | 8·3 | 1·0 |
| 23 14·14 | 0·77 | 0·63 | 19 36 16·5 | 1·7 | 8·3 | 1·0 |
| 22 55·58 | 0·77 | 0·63 | 19 35 36·1 | 1·7 | 8·3 | 1·0 |
| 22 37·00 | 0·77 | 0·63 | 19 34 55·7 | 1·7 | 8·3 | 1·0 |
| 22 18·41 | 0·77 | 0·63 | 19 34 15·3 | 1·7 | 8·3 | 1·0 |
| 21 59·83 | 0·77 | 0·63 | 19 33 35·1 | 1·7 | 8·3 | 1·0 |
| 21 41·25 | 0·77 | 0·63 | 19 32 55·0 | 1·7 | 8·3 | 1·0 |
| 21 22·68 | 0·77 | 0·63 | 19 32 15·0 | 1·7 | 8·3 | 1·0 |
| 21 4·14 | − 0·77 | 0·63 | S. 19 31 35·2 | + 1·7 | 8·3 | 1·0 |

# MARCH, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | R |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 16 34 43·87 | S. 20 8 20·8 | 0·9981487 | 17 57·4 | 244 20 52·5 | N. 1 50 49·9 | 1·0 |
| 2 | 16 34 51·70 | 20 8 28·7 | ·9974212 | 17 53·6 | 244 22 42·0 | 1 50 46·7 | ·0 |
| 3 | 16 34 59·12 | 20 8 35·8 | ·9966928 | 17 49·8 | 244 24 31·4 | 1 50 43·5 | ·0 |
| 4 | 16 35 6·14 | 20 8 42·0 | ·9959636 | 17 46·0 | 244 26 20·9 | 1 50 40·3 | ·0 |
| 5 | 16 35 12·75 | 20 8 47·3 | ·9952338 | 17 42·2 | 244 28 10·4 | 1 50 37·1 | ·0 |
| 6 | 16 35 18·94 | 20 8 51·7 | ·9945037 | 17 38·3 | 244 29 59·9 | 1 50 33·9 | ·0 |
| 7 | 16 35 24·71 | 20 8 55·2 | ·9937734 | 17 34·5 | 244 31 49·5 | 1 50 30·7 | ·0 |
| 8 | 16 35 30·06 | 20 8 57·9 | ·9930431 | 17 30·7 | 244 33 39·1 | 1 50 27·5 | ·0 |
| 9 | 16 35 35·00 | 20 8 59·7 | ·9923132 | 17 26·8 | 244 35 28·7 | 1 50 24·3 | ·0 |
| 10 | 16 35 39·51 | 20 9 0·7 | ·9915836 | 17 22·9 | 244 37 18·3 | 1 50 21·1 | ·0 |
| 11 | 16 35 43·59 | 20 9 0·8 | ·9908548 | 17 19·1 | 244 39 7·9 | 1 50 17·9 | ·0 |
| 12 | 16 35 47·24 | 20 9 0·0 | ·9901270 | 17 15·2 | 244 40 57·4 | 1 50 14·7 | ·0 |
| 13 | 16 35 50·47 | 20 8 58·3 | ·9894003 | 17 11·3 | 244 42 46·9 | 1 50 11·5 | ·0 |
| 14 | 16 35 53·26 | 20 8 55·8 | ·9886749 | 17 7·4 | 244 44 36·4 | 1 50 8·3 | ·0 |
| 15 | 16 35 55·62 | 20 8 52·4 | ·9879513 | 17 3·5 | 244 46 25·8 | 1 50 5·0 | ·0 |
| 16 | 16 35 57·57 | 20 8 48·2 | ·9872294 | 16 59·6 | 244 48 15·1 | 1 50 1·8 | ·0 |
| 17 | 16 35 59·09 | 20 8 43·1 | ·9865098 | 16 55·7 | 244 50 4·5 | 1 49 58·6 | ·0 |
| 18 | 16 36 0·18 | 20 8 37·1 | ·9857927 | 16 51·8 | 244 51 54·0 | 1 49 55·4 | ·0 |
| 19 | 16 36 0·84 | 20 8 30·3 | ·9850781 | 16 47·9 | 244 53 43·5 | 1 49 52·2 | ·00 |
| 20 | 16 36 1·08 | 20 8 22·7 | ·9843663 | 16 44·0 | 244 55 33·0 | 1 49 48·9 | ·00 |
| 21 | 16 36 0·90 | 20 8 14·3 | ·9836578 | 16 40·0 | 244 57 22·6 | 1 49 45·7 | ·00 |
| 22 | 16 36 0·30 | 20 8 5·2 | ·9829525 | 16 36·0 | 244 59 12·1 | 1 49 42·5 | ·00 |
| 23 | 16 35 59·27 | 20 7 55·2 | ·9822509 | 16 32·1 | 245 1 1·7 | 1 49 39·3 | ·00 |
| 24 | 16 35 57·83 | 20 7 44·4 | ·9815532 | 16 28·1 | 245 2 51·2 | 1 49 36·0 | ·00 |
| 25 | 16 35 55·96 | 20 7 32·9 | ·9808594 | 16 24·2 | 245 4 40·7 | 1 49 32·8 | ·00 |
| 26 | 16 35 53·68 | 20 7 20·6 | ·9801699 | 16 20·2 | 245 6 30·2 | 1 49 29·6 | ·00 |
| 27 | 16 35 50·98 | 20 7 7·5 | ·9794850 | 16 16·2 | 245 8 19·6 | 1 49 26·3 | ·00 |
| 28 | 16 35 47·86 | 20 6 53·6 | ·9788047 | 16 12·2 | 245 10 9·0 | 1 49 23·1 | ·00 |
| 29 | 16 35 44·33 | 20 6 38·9 | ·9781292 | 16 8·2 | 245 11 58·3 | 1 49 19·9 | ·00 |
| 30 | 16 35 40·39 | 20 6 23·4 | ·9774590 | 16 4·2 | 245 13 47·7 | 1 49 16·6 | ·00 |
| 31 | 16 35 36·04 | 20 6 7·1 | ·9767941 | 16 0·2 | 245 15 37·1 | 1 49 13·4 | ·00 |
| | 35 31·29 | S. 20 5 50·1 | 0·9761348 | 15 56·2 | 245 17 26·5 | N. 1 49 10·1 | 1·00 |

# JUNE, 1839.

At Transit over the Meridian of Greenwich.

| ght cension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 21 4 ·14 | — 0 ·77 | 0 ·63 | S. 19 31 35 ·2 | + 1 ·7 | 8 ·3 | 1 ·0 |
| 20 45 ·63 | 0 ·77 | 0 ·63 | 19 30 55 ·5 | 1 ·6 | 8 ·3 | 1 ·0 |
| 20 27 ·16 | 0 ·77 | 0 ·63 | 19 30 16 ·1 | 1 ·6 | 8 ·3 | 1 ·0 |
| 20 8 ·73 | 0 ·77 | 0 ·63 | 19 29 36 ·9 | 1 ·6 | 8 ·3 | 1 ·0 |
| 19 50 ·36 | 0 ·76 | 0 ·63 | 19 28 57 ·9 | 1 ·6 | 8 ·3 | 1 ·0 |
| 19 32 ·07 | 0 ·76 | 0 ·63 | 19 28 19 ·2 | 1 ·6 | 8 ·3 | 1 ·0 |
| 19 13 ·86 | 0 ·76 | 0 ·63 | 19 27 40 ·7 | 1 ·6 | 8 ·3 | 1 ·0 |
| 18 55 ·74 | 0 ·75 | 0 ·63 | 19 27 2 ·5 | 1 ·6 | 8 ·3 | 1 ·0 |
| 18 37 ·72 | 0 ·75 | 0 ·63 | 19 26 24 ·7 | 1 ·6 | 8 ·3 | 1 ·0 |
| 18 19 ·81 | 0 ·74 | 0 ·63 | 19 25 47 ·3 | 1 ·6 | 8 ·3 | 0 ·9 |
| 18 2 ·02 | 0 ·74 | 0 ·63 | 19 25 10 ·3 | 1 ·5 | 8 ·3 | 0 ·9 |
| 17 44 ·35 | 0 ·73 | 0 ·63 | 19 24 33 ·7 | 1 ·5 | 8 ·3 | 0 ·9 |
| 17 26 ·82 | 0 ·73 | 0 ·63 | 19 23 57 ·5 | 1 ·5 | 8 ·3 | 0 ·9 |
| 17 9 ·44 | 0 ·72 | 0 ·63 | 19 23 21 ·8 | 1 ·5 | 8 ·3 | 0 ·9 |
| 16 52 ·21 | 0 ·72 | 0 ·63 | 19 22 46 ·7 | 1 ·5 | 8 ·3 | 0 ·9 |
| 16 35 ·15 | 0 ·71 | 0 ·63 | 19 22 12 ·1 | 1 ·4 | 8 ·3 | 0 ·9 |
| 16 18 ·25 | 0 ·70 | 0 ·63 | 19 21 37 ·9 | 1 ·4 | 8 ·3 | 0 ·9 |
| 16 1 ·53 | 0 ·69 | 0 ·62 | 19 21 4 ·2 | 1 ·4 | 8 ·3 | 0 ·9 |
| 15 44 ·99 | 0 ·69 | 0 ·62 | 19 20 31 ·2 | 1 ·4 | 8 ·3 | 0 ·9 |
| 15 28 ·65 | 0 ·68 | 0 ·62 | 19 19 58 ·7 | 1 ·3 | 8 ·3 | 0 ·9 |
| 15 12 ·51 | 0 ·67 | 0 ·62 | 19 19 26 ·8 | 1 ·3 | 8 ·3 | 0 ·9 |
| 14 56 ·58 | 0 ·66 | 0 ·62 | 19 18 55 ·5 | 1 ·3 | 8 ·3 | 0 ·9 |
| 14 40 ·87 | 0 ·65 | 0 ·62 | 19 18 24 ·9 | 1 ·3 | 8 ·3 | 0 ·9 |
| 14 25 ·39 | 0 ·64 | 0 ·62 | 19 17 55 ·0 | 1 ·2 | 8 ·3 | 0 ·9 |
| 14 10 ·14 | 0 ·63 | 0 ·62 | 19 17 25 ·6 | 1 ·2 | 8 ·2 | 0 ·9 |
| 13 55 ·13 | 0 ·62 | 0 ·62 | 19 16 57 ·0 | 1 ·2 | 8 ·2 | 0 ·9 |
| 13 40 ·36 | 0 ·61 | 0 ·62 | 19 16 29 ·2 | 1 ·1 | 8 ·2 | 0 ·9 |
| 13 25 ·85 | 0 ·60 | 0 ·62 | 19 16 2 ·1 | 1 ·1 | 8 ·2 | 0 ·9 |
| 13 11 ·59 | 0 ·59 | 0 ·62 | 19 15 35 ·8 | 1 ·1 | 8 ·2 | 0 ·9 |
| 12 57 ·59 | 0 ·58 | 0 ·62 | 19 15 10 ·1 | 1 ·1 | 8 ·2 | 0 ·9 |
| 12 43 ·85 | — 0 ·57 | 0 ·62 | S. 19 14 45 ·3 | + 1 ·0 | 8 ·2 | 0 ·9 |

# APRIL, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 16 35 31·29 | S. 20 5 50·1 | 0·9761348 | 15 56·2 | 245 17 26·5 | N. 1 49 10·1 | 1·00 |
| 2 | 16 35 26·14 | 20 5 32·4 | ·9754815 | 15 52·2 | 245 19 15·9 | 1 49 6·9 | ·00 |
| 3 | 16 35 20·59 | 20 5 13·9 | ·9748341 | 15 48·2 | 245 21 5·4 | 1 49 3·7 | ·00 |
| 4 | 16 35 14·65 | 20 4 54·7 | ·9741930 | 15 44·1 | 245 22 54·9 | 1 49 0·4 | ·00 |
| 5 | 16 35 8·32 | 20 4 34·8 | ·9735586 | 15 40·1 | 245 24 44·4 | 1 48 57·1 | ·00 |
| 6 | 16 35 1·58 | 20 4 14·2 | ·9729308 | 15 36·0 | 245 26 34·0 | 1 48 53·9 | ·00 |
| 7 | 16 34 54·45 | 20 3 52·9 | ·9723099 | 15 32·0 | 245 28 23·5 | 1 48 50·6 | ·00 |
| 8 | 16 34 46·93 | 20 3 30·9 | ·9716964 | 15 27·9 | 245 30 12·9 | 1 48 47·4 | ·00 |
| 9 | 16 34 39·03 | 20 3 8·2 | ·9710903 | 15 23·9 | 245 32 2·4 | 1 48 44·1 | ·00 |
| 10 | 16 34 30·74 | 20 2 44·8 | ·9704920 | 15 19·8 | 245 33 51·8 | 1 48 40·9 | ·00 |
| 11 | 16 34 22·08 | 20 2 20·7 | ·9699018 | 15 15·7 | 245 35 41·1 | 1 48 37·6 | ·00 |
| 12 | 16 34 13·05 | 20 1 55·9 | ·9693197 | 15 11·6 | 245 37 30·5 | 1 48 34·3 | ·00 |
| 13 | 16 34 3·65 | 20 1 30·4 | ·9687460 | 15 7·5 | 245 39 19·8 | 1 48 31·1 | ·00 |
| 14 | 16 33 53·89 | 20 1 4·3 | ·9681811 | 15 3·4 | 245 41 9·1 | 1 48 27·8 | ·00 |
| 15 | 16 33 43·78 | 20 0 37·5 | ·9676250 | 14 59·3 | 245 42 58·5 | 1 48 24·5 | ·00 |
| 16 | 16 33 33·31 | 20 0 10·1 | ·9670782 | 14 55·2 | 245 44 48·0 | 1 48 21·3 | ·00 |
| 17 | 16 33 22·50 | 19 59 42·1 | ·9665409 | 14 51·1 | 245 46 37·5 | 1 48 18·0 | ·00 |
| 18 | 16 33 11·35 | 19 59 13·5 | ·9660131 | 14 47·0 | 245 48 27·0 | 1 48 14·7 | ·00 |
| 19 | 16 32 59·87 | 19 58 44·4 | ·9654950 | 14 42·9 | 245 50 16·5 | 1 48 11·5 | ·00 |
| 20 | 16 32 48·06 | 19 58 14·7 | ·9649871 | 14 38·7 | 245 52 6·0 | 1 48 8·2 | ·00 |
| 21 | 16 32 35·93 | 19 57 44·4 | ·9644893 | 14 34·6 | 245 53 55·4 | 1 48 4·9 | ·00 |
| 22 | 16 32 23·48 | 19 57 13·5 | ·9640020 | 14 30·4 | 245 55 44·8 | 1 48 1·6 | ·00 |
| 23 | 16 32 10·73 | 19 56 42·1 | ·9635254 | 14 26·3 | 245 57 34·2 | 1 47 58·3 | ·00 |
| 24 | 16 31 57·67 | 19 56 10·2 | ·9630594 | 14 22·1 | 245 59 23·5 | 1 47 55·1 | ·00 |
| 25 | 16 31 44·31 | 19 55 37·8 | ·9626043 | 14 18·0 | 246 1 12·9 | 1 47 51·8 | ·00 |
| 26 | 16 31 30·66 | 19 55 4·9 | ·9621603 | 14 13·8 | 246 3 2·2 | 1 47 48·5 | ·00 |
| 27 | 16 31 16·74 | 19 54 31·4 | ·9617275 | 14 9·7 | 246 4 51·5 | 1 47 45·2 | ·00 |
| 28 | 16 31 2·54 | 19 53 57·5 | ·9613062 | 14 5·5 | 246 6 40·8 | 1 47 41·9 | ·00 |
| 29 | 16 30 48·07 | 19 53 23·1 | ·9608966 | 14 1·3 | 246 8 30·2 | 1 47 38·6 | ·00 |
| 30 | 16 30 33·35 | 19 52 48·3 | ·9604987 | 13 57·1 | 246 10 19·6 | 1 47 35·3 | ·00 |
| 31 | 16 30 18·38 | S. 19 52 13·0 | 0·9601128 | 13 52·9 | 246 12 9·1 | N. 1 47 32·0 | 1·00 |

# JUNE, 1839.

At Transit over the Meridian of Greenwich.

| | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|---|
| | h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| | 16 21 4 ·14 | — 0 ·77 | 0 ·63 | S. 19 31 35 ·2 | + 1 ·7 | 8 ·3 | 1 ·0 |
| | 16 20 45 ·63 | 0 ·77 | 0 ·63 | 19 30 55 ·5 | 1 ·6 | 8 ·3 | 1 ·0 |
| | 16 20 27 ·16 | 0 ·77 | 0 ·63 | 19 30 16 ·1 | 1 ·6 | 8 ·3 | 1 ·0 |
| | 16 20 8 ·73 | 0 ·77 | 0 ·63 | 19 29 36 ·9 | 1 ·6 | 8 ·3 | 1 ·0 |
| | 16 19 50 ·36 | 0 ·76 | 0 ·63 | 19 28 57 ·9 | 1 ·6 | 8 ·3 | 1 ·0 |
| | 16 19 32 ·07 | 0 ·76 | 0 ·63 | 19 28 19 ·2 | 1 ·6 | 8 ·3 | 1 ·0 |
| | 16 19 13 ·86 | 0 ·76 | 0 ·63 | 19 27 40 ·7 | 1 ·6 | 8 ·3 | 1 ·0 |
| | 16 18 55 ·74 | 0 ·75 | 0 ·63 | 19 27 2 ·5 | 1 ·6 | 8 ·3 | 1 ·0 |
| | 16 18 37 ·72 | 0 ·75 | 0 ·63 | 19 26 24 ·7 | 1 ·6 | 8 ·3 | 1 ·0 |
| | 16 18 19 ·81 | 0 ·74 | 0 ·63 | 19 25 47 ·3 | 1 ·6 | 8 ·3 | 0 ·9 |
| | 16 18 2 ·02 | 0 ·74 | 0 ·63 | 19 25 10 ·3 | 1 ·5 | 8 ·3 | 0 ·9 |
| | 16 17 44 ·35 | 0 ·73 | 0 ·63 | 19 24 33 ·7 | 1 ·5 | 8 ·3 | 0 ·9 |
| | 16 17 26 ·82 | 0 ·73 | 0 ·63 | 19 23 57 ·5 | 1 ·5 | 8 ·3 | 0 ·9 |
| | 16 17 9 ·44 | 0 ·72 | 0 ·63 | 19 23 21 ·8 | 1 ·5 | 8 ·3 | 0 ·9 |
| | 16 16 52 ·21 | 0 ·72 | 0 ·63 | 19 22 46 ·7 | 1 ·5 | 8 ·3 | 0 ·9 |
| | 16 16 35 ·15 | 0 ·71 | 0 ·63 | 19 22 12 ·1 | 1 ·4 | 8 ·3 | 0 ·9 |
| | 16 16 18 ·25 | 0 ·70 | 0 ·63 | 19 21 37 ·9 | 1 ·4 | 8 ·3 | 0 ·9 |
| | 16 16 1 ·53 | 0 ·69 | 0 ·62 | 19 21 4 ·2 | 1 ·4 | 8 ·3 | 0 ·9 |
| | 16 15 44 ·99 | 0 ·69 | 0 ·62 | 19 20 31 ·2 | 1 ·4 | 8 ·3 | 0 ·9 |
| | 16 15 28 ·65 | 0 ·68 | 0 ·62 | 19 19 58 ·7 | 1 ·3 | 8 ·3 | 0 ·9 |
| | 16 15 12 ·51 | 0 ·67 | 0 ·62 | 19 19 26 ·8 | 1 ·3 | 8 ·3 | 0 ·9 |
| | 16 14 56 ·58 | 0 ·66 | 0 ·62 | 19 18 55 ·5 | 1 ·3 | 8 ·3 | 0 ·9 |
| | 16 14 40 ·87 | 0 ·65 | 0 ·62 | 19 18 24 ·9 | 1 ·3 | 8 ·3 | 0 ·9 |
| | 16 14 25 ·39 | 0 ·64 | 0 ·62 | 19 17 55 ·0 | 1 ·2 | 8 ·3 | 0 ·9 |
| | 16 14 10 ·14 | 0 ·63 | 0 ·62 | 19 17 25 ·6 | 1 ·2 | 8 ·2 | 0 ·9 |
| | 16 13 55 ·13 | 0 ·62 | 0 ·62 | 19 16 57 ·0 | 1 ·2 | 8 ·2 | 0 ·9 |
| | 16 13 40 ·36 | 0 ·61 | 0 ·62 | 19 16 29 ·2 | 1 ·1 | 8 ·2 | 0 ·9 |
| | 16 13 25 ·85 | 0 ·60 | 0 ·62 | 19 16 2 ·1 | 1 ·1 | 8 ·2 | 0 ·9 |
| | 16 13 11 ·59 | 0 ·59 | 0 ·62 | 19 15 35 ·8 | 1 ·1 | 8 ·2 | 0 ·9 |
| | 16 12 57 ·59 | 0 ·58 | 0 ·62 | 19 15 10 ·1 | 1 ·1 | 8 ·2 | 0 ·9 |
| | 16 12 43 ·85 | — 0 ·57 | 0 ·62 | S. 19 14 45 ·3 | + 1 ·0 | 8 ·2 | 0 ·9 |

# JULY, 1839.

nsit over the Meridian of Greenwich.

| | Asc. Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 43 ·85 | — 0 ·57 | 0 ·62 | S. 19 14 45 ·3 | + 1 ·0 | 8 ·2 | 0 ·9 |
| 12 30 ·39 | 0 ·56 | 0 ·62 | 19 14 21 ·2 | 1 ·0 | 8 ·2 | 0 ·9 |
| 16 12 17 ·20 | 0 ·54 | 0 ·62 | 19 13 58 ·0 | 1 ·0 | 8 ·2 | 0 ·9 |
| 16 12 4 ·30 | 0 ·53 | 0 ·62 | 19 13 35 ·6 | 0 ·9 | 8 ·2 | 0 ·9 |
| 16 11 51 ·71 | 0 ·52 | 0 ·62 | 19 13 14 ·1 | 0 ·9 | 8 ·2 | 0 ·9 |
| 16 11 39 ·42 | 0 ·51 | 0 ·61 | 19 12 53 ·4 | 0 ·8 | 8 ·2 | 0 ·9 |
| 16 11 27 ·45 | 0 ·49 | 0 ·61 | 19 12 33 ·7 | 0 ·8 | 8 ·1 | 0 ·9 |
| 16 11 15 ·79 | 0 ·48 | 0 ·61 | 19 12 14 ·9 | 0 ·8 | 8 ·1 | 0 ·9 |
| 16 11 4 ·42 | 0 ·47 | 0 ·61 | 19 11 57 ·0 | 0 ·7 | 8 ·1 | 0 ·9 |
| 16 10 53 ·38 | 0 ·45 | 0 ·61 | 19 11 40 ·0 | 0 ·7 | 8 ·1 | 0 ·9 |
| 16 10 42 ·67 | 0 ·44 | 0 ·61 | 19 11 24 ·0 | 0 ·6 | 8 ·1 | 0 ·9 |
| 16 10 32 ·29 | 0 ·43 | 0 ·61 | 19 11 9 ·0 | 0 ·6 | 8 ·1 | 0 ·9 |
| 16 10 22 ·26 | 0 ·41 | 0 ·61 | 19 10 54 ·9 | 0 ·6 | 8 ·1 | 0 ·9 |
| 16 10 12 ·58 | 0 ·40 | 0 ·61 | 19 10 41 ·8 | 0 ·5 | 8 ·1 | 0 ·9 |
| 16 10 3 ·24 | 0 ·38 | 0 ·61 | 19 10 29 ·7 | 0 ·5 | 8 ·1 | 0 ·9 |
| 16 9 54 ·24 | 0 ·37 | 0 ·61 | 19 10 18 ·6 | 0 ·4 | 8 ·1 | 0 ·9 |
| 16 9 45 ·60 | 0 ·35 | 0 ·61 | 19 10 8 ·4 | 0 ·4 | 8 ·1 | 0 ·9 |
| 16 9 37 ·32 | 0 ·34 | 0 ·61 | 19 9 59 ·3 | 0 ·4 | 8 ·0 | 0 ·9 |
| 16 9 29 ·40 | 0 ·32 | 0 ·61 | 19 9 51 ·3 | 0 ·3 | 8 ·0 | 0 ·9 |
| 16 9 21 ·85 | 0 ·31 | 0 ·61 | 19 9 44 ·3 | 0 ·3 | 8 ·0 | 0 ·9 |
| 16 9 14 ·68 | 0 ·29 | 0 ·61 | 19 9 38 ·3 | 0 ·2 | 8 ·0 | 0 ·9 |
| 16 9 7 ·88 | 0 ·28 | 0 ·61 | 19 9 33 ·4 | 0 ·2 | 8 ·0 | 0 ·9 |
| 16 9 1 ·45 | 0 ·26 | 0 ·61 | 19 9 29 ·6 | 0 ·1 | 8 ·0 | 0 ·9 |
| 16 8 55 ·40 | 0 ·24 | 0 ·60 | 19 9 26 ·9 | 0 ·1 | 8 ·0 | 0 ·9 |
| 16 8 49 ·71 | 0 ·23 | 0 ·60 | 19 9 25 ·1 | + 0 ·1 | 8 ·0 | 0 ·9 |
| 16 8 44 ·40 | 0 ·21 | 0 ·60 | 19 9 24 ·4 | 0 ·0 | 7 ·9 | 0 ·9 |
| 16 8 39 ·47 | 0 ·20 | 0 ·60 | 19 9 24 ·9 | 0 ·0 | 7 ·9 | 0 ·9 |
| 16 8 34 ·93 | 0 ·18 | 0 ·60 | 19 9 26 ·5 | — 0 ·1 | 7 ·9 | 0 ·9 |
| 16 8 30 ·77 | 0 ·17 | 0 ·60 | 19 9 29 ·1 | 0 ·1 | 7 ·9 | 0 ·9 |
| 16 8 27 ·00 | 0 ·15 | 0 ·60 | 19 9 32 ·8 | 0 ·2 | 7 ·9 | 0 ·9 |
| 16 8 23 ·61 | 0 ·13 | 0 ·60 | 19 9 37 ·5 | 0 ·2 | 7 ·9 | 0 ·9 |
| 16 8 20 ·62 | — 0 ·12 | 0 ·60 | S. 19 9 43 ·2 | — 0 ·3 | 7 ·9 | 0 ·9 |

# JUNE, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | |
|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ |
| 1 | 16 21 13·20 | S. 19 31 54·6 | 0·9547730 | 11 42·0 | 247 8 39·9 | N. 1 45 49·0 |
| 2 | 16 20 54·62 | 19 31 14·7 | ·9548269 | 11 37·8 | 247 10 29·2 | 1 45 45·6 |
| 3 | 16 20 36·07 | 19 30 35·0 | ·9548953 | 11 33·5 | 247 12 18·6 | 1 45 42·3 |
| 4 | 16 20 17·56 | 19 29 55·6 | ·9549780 | 11 29·3 | 247 14 7·9 | 1 45 38·9 |
| 5 | 16 19 59·11 | 19 29 16·4 | ·9550749 | 11 25·1 | 247 15 57·1 | 1 45 35·5 |
| 6 | 16 19 40·73 | 19 28 37·4 | ·9551860 | 11 20·8 | 247 17 46·4 | 1 45 32·2 |
| 7 | 16 19 22·43 | 19 27 58·6 | ·9553114 | 11 16·5 | 247 19 35·6 | 1 45 28·8 |
| 8 | 16 19 4·21 | 19 27 20·2 | ·9554510 | 11 12·3 | 247 21 24·9 | 1 45 25·5 |
| 9 | 16 18 46·09 | 19 26 42·2 | ·9556051 | 11 8·1 | 247 23 14·2 | 1 45 22·1 |
| 10 | 16 18 28·08 | 19 26 4·5 | ·9557731 | 11 3·9 | 247 25 3·6 | 1 45 18·7 |
| 11 | 16 18 10·18 | 19 25 27·2 | ·9559551 | 10 59·7 | 247 26 53·0 | 1 45 15·4 |
| 12 | 16 17 52·40 | 19 24 50·3 | ·9561507 | 10 55·4 | 247 28 42·4 | 1 45 12·0 |
| 13 | 16 17 34·76 | 19 24 13·8 | ·9563600 | 10 51·2 | 247 30 31·8 | 1 45 8·6 |
| 14 | 16 17 17·26 | 19 23 37·8 | ·9565831 | 10 47·0 | 247 32 21·2 | 1 45 5·3 |
| 15 | 16 16 59·91 | 19 23 2·4 | ·9568200 | 10 42·8 | 247 34 10·5 | 1 45 1·9 |
| 16 | 16 16 42·72 | 19 22 27·5 | ·9570703 | 10 38·6 | 247 35 59·8 | 1 44 58·5 |
| 17 | 16 16 25·69 | 19 21 53·0 | ·9573339 | 10 34·3 | 247 37 49·1 | 1 44 55·1 |
| 18 | 16 16 8·84 | 19 21 19·0 | ·9576107 | 10 30·1 | 247 39 38·3 | 1 44 51·8 |
| 19 | 16 15 52·17 | 19 20 45·6 | ·9579005 | 10 25·9 | 247 41 27·6 | 1 44 48·4 |
| 20 | 16 15 35·69 | 19 20 12·7 | ·9582033 | 10 21·7 | 247 43 16·8 | 1 44 45·0 |
| 21 | 16 15 19·42 | 19 19 40·4 | ·9585188 | 10 17·5 | 247 45 6·0 | 1 44 41·6 |
| 22 | 16 15 3·36 | 19 19 8·8 | ·9588468 | 10 13·3 | 247 46 55·3 | 1 44 38·2 |
| 23 | 16 14 47·51 | 19 18 37·8 | ·9591874 | 10 9·1 | 247 48 44·6 | 1 44 34·8 |
| 24 | 16 14 31·89 | 19 18 7·5 | ·9595403 | 10 5·0 | 247 50 33·9 | 1 44 31·5 |
| 25 | 16 14 16·50 | 19 17 37·8 | ·9599053 | 10 0·8 | 247 52 23·3 | 1 44 28·1 |
| 26 | 16 14 1·34 | 19 17 8·8 | ·9602824 | 9 56·6 | 247 54 12·6 | 1 44 24·7 |
| 27 | 16 13 46·43 | 19 16 40·6 | ·9606712 | 9 52·4 | 247 56 2·0 | 1 44 21·3 |
| 28 | 16 13 31·77 | 19 16 13·1 | ·9610716 | 9 48·2 | 247 57 51·3 | 1 44 17·9 |
| 29 | 16 13 17·36 | 19 15 46·4 | ·9614835 | 9 44·1 | 247 59 40·7 | 1 44 14·5 |
| 30 | 16 13 3·21 | 19 15 20·4 | ·9619069 | 9 39·9 | 248 1 30·0 | 1 44 11·1 |
| 31 | 16 12 49·33 | S. 19 14 55·2 | 0·9623415 | 9 35·7 | 248 3 19·2 | N. 1 44 7·7 |

# JUNE, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 16 21 4 ·14 | − 0 ·77 | 0 ·63 | S. 19 31 35 ·2 | + 1 ·7 | 8 ·3 | 1 ·0 |
| 16 20 45 ·63 | 0 ·77 | 0 ·63 | 19 30 55 ·5 | 1 ·6 | 8 ·3 | 1 ·0 |
| 16 20 27 ·16 | 0 ·77 | 0 ·63 | 19 30 16 ·1 | 1 ·6 | 8 ·3 | 1 ·0 |
| 16 20 8 ·73 | 0 ·77 | 0 ·63 | 19 29 36 ·9 | 1 ·6 | 8 ·3 | 1 ·0 |
| 16 19 50 ·36 | 0 ·76 | 0 ·63 | 19 28 57 ·9 | 1 ·6 | 8 ·3 | 1 ·0 |
| 16 19 32 ·07 | 0 ·76 | 0 ·63 | 19 28 19 ·2 | 1 ·6 | 8 ·3 | 1 ·0 |
| 16 19 13 ·86 | 0 ·76 | 0 ·63 | 19 27 40 ·7 | 1 ·6 | 8 ·3 | 1 ·0 |
| 16 18 55 ·74 | 0 ·75 | 0 ·63 | 19 27 2 ·5 | 1 ·6 | 8 ·3 | 1 ·0 |
| 16 18 37 ·72 | 0 ·75 | 0 ·63 | 19 26 24 ·7 | 1 ·6 | 8 ·3 | 1 ·0 |
| 16 18 19 ·81 | 0 ·74 | 0 ·63 | 19 25 47 ·3 | 1 ·6 | 8 ·3 | 0 ·9 |
| 16 18 2 ·02 | 0 ·74 | 0 ·63 | 19 25 10 ·3 | 1 ·5 | 8 ·3 | 0 ·9 |
| 16 17 44 ·35 | 0 ·73 | 0 ·63 | 19 24 33 ·7 | 1 ·5 | 8 ·3 | 0 ·9 |
| 16 17 26 ·82 | 0 ·73 | 0 ·63 | 19 23 57 ·5 | 1 ·5 | 8 ·3 | 0 ·9 |
| 16 17 9 ·44 | 0 ·72 | 0 ·63 | 19 23 21 ·8 | 1 ·5 | 8 ·3 | 0 ·9 |
| 16 16 52 ·21 | 0 ·72 | 0 ·63 | 19 22 46 ·7 | 1 ·5 | 8 ·3 | 0 ·9 |
| 16 16 35 ·15 | 0 ·71 | 0 ·63 | 19 22 12 ·1 | 1 ·4 | 8 ·3 | 0 ·9 |
| 16 16 18 ·25 | 0 ·70 | 0 ·63 | 19 21 37 ·9 | 1 ·4 | 8 ·3 | 0 ·9 |
| 16 16 1 ·53 | 0 ·69 | 0 ·62 | 19 21 4 ·2 | 1 ·4 | 8 ·3 | 0 ·9 |
| 16 15 44 ·99 | 0 ·69 | 0 ·62 | 19 20 31 ·2 | 1 ·4 | 8 ·3 | 0 ·9 |
| 16 15 28 ·65 | 0 ·68 | 0 ·62 | 19 19 58 ·7 | 1 ·3 | 8 ·3 | 0 ·9 |
| 16 15 12 ·51 | 0 ·67 | 0 ·62 | 19 19 26 ·8 | 1 ·3 | 8 ·3 | 0 ·9 |
| 16 14 56 ·58 | 0 ·66 | 0 ·62 | 19 18 55 ·5 | 1 ·3 | 8 ·3 | 0 ·9 |
| 16 14 40 ·87 | 0 ·65 | 0 ·62 | 19 18 24 ·9 | 1 ·3 | 8 ·3 | 0 ·9 |
| 16 14 25 ·39 | 0 ·64 | 0 ·62 | 19 17 55 ·0 | 1 ·2 | 8 ·3 | 0 ·9 |
| 16 14 10 ·14 | 0 ·63 | 0 ·62 | 19 17 25 ·6 | 1 ·2 | 8 ·2 | 0 ·9 |
| 16 13 55 ·13 | 0 ·62 | 0 ·62 | 19 16 57 ·0 | 1 ·2 | 8 ·2 | 0 ·9 |
| 16 13 40 ·36 | 0 ·61 | 0 ·62 | 19 16 29 ·2 | 1 ·1 | 8 ·2 | 0 ·9 |
| 16 13 25 ·85 | 0 ·60 | 0 ·62 | 19 16 2 ·1 | 1 ·1 | 8 ·2 | 0 ·9 |
| 16 13 11 ·59 | 0 ·59 | 0 ·62 | 19 15 35 ·8 | 1 ·1 | 8 ·2 | 0 ·9 |
| 16 12 57 ·59 | 0 ·58 | 0 ·62 | 19 15 10 ·1 | 1 ·1 | 8 ·2 | 0 ·9 |
| 16 12 43 ·85 | − 0 ·57 | 0 ·62 | S. 19 14 45 ·3 | + 1 ·0 | 8 ·2 | 0 ·9 |

# JULY, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | |
|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ |
| 1 | 16 12 49·33 | S. 19 14 55·2 | 0·9623415 | 9 35·7 | 248 3 19·2 | N. 1 44 7·7 |
| 2 | 16 12 35·72 | 19 14 30·7 | ·9627872 | 9 31·6 | 248 5 8·4 | 1 44 4·3 |
| 3 | 16 12 22·38 | 19 14 7·1 | ·9632436 | 9 27·4 | 248 6 57·6 | 1 44 0·9 |
| 4 | 16 12 9·33 | 19 13 44·3 | ·9637106 | 9 23·3 | 248 8 46·7 | 1 43 57·5 |
| 5 | 16 11 56·58 | 19 13 22·4 | ·9641883 | 9 19·1 | 248 10 35·9 | 1 43 54·1 |
| 6 | 16 11 44·14 | 19 13 1·3 | ·9646764 | 9 15·0 | 248 12 25·1 | 1 43 50·7 |
| 7 | 16 11 32·02 | 19 12 41·1 | ·9651745 | 9 10·9 | 248 14 14·4 | 1 43 47·3 |
| 8 | 16 11 20·20 | 19 12 21·9 | ·9656826 | 9 6·7 | 248 16 3·7 | 1 43 43·9 |
| 9 | 16 11 8·68 | 19 12 3·6 | ·9662004 | 9 2·6 | 248 17 53·1 | 1 43 40·5 |
| 10 | 16 10 57·48 | 19 11 46·2 | ·9667277 | 8 58·5 | 248 19 42·4 | 1 43 37·0 |
| 11 | 16 10 46·62 | 19 11 29·8 | ·9672644 | 8 54·4 | 248 21 31·7 | 1 43 33·6 |
| 12 | 16 10 36·09 | 19 11 14·4 | ·9678102 | 8 50·3 | 248 23 21·0 | 1 43 30·2 |
| 13 | 16 10 25·90 | 19 10 59·9 | ·9683648 | 8 46·2 | 248 25 10·2 | 1 43 26·8 |
| 14 | 16 10 16·06 | 19 10 46·4 | ·9689282 | 8 42·1 | 248 26 59·4 | 1 43 23·4 |
| 15 | 16 10 6·56 | 19 10 33·9 | ·9695000 | 8 38·0 | 248 28 48·6 | 1 43 19·9 |
| 16 | 16 9 57·41 | 19 10 22·4 | ·9700798 | 8 33·9 | 248 30 37·7 | 1 43 16·5 |
| 17 | 16 9 48·62 | 19 10 11·9 | ·9706676 | 8 29·9 | 248 32 26·8 | 1 43 13·1 |
| 18 | 16 9 40·19 | 19 10 2·4 | ·9712631 | 8 25·8 | 248 34 16·0 | 1 43 9·7 |
| 19 | 16 9 32·12 | 19 9 54·0 | ·9718659 | 8 21·7 | 248 36 5·1 | 1 43 6·2 |
| 20 | 16 9 24·42 | 19 9 46·6 | ·9724761 | 8 17·7 | 248 37 54·3 | 1 43 2·8 |
| 21 | 16 9 17·10 | 19 9 40·2 | ·9730934 | 8 13·6 | 248 39 43·5 | 1 42 59·4 |
| 22 | 16 9 10·15 | 19 9 34·9 | ·9737174 | 8 9·5 | 248 41 32·8 | 1 42 55·9 |
| 23 | 16 9 3·58 | 19 9 30·7 | ·9743481 | 8 5·5 | 248 43 22·1 | 1 42 52·5 |
| 24 | 16 8 57·38 | 19 9 27·6 | ·9749851 | 8 1·5 | 248 45 11·3 | 1 42 49·1 |
| 25 | 16 8 51·55 | 19 9 25·5 | ·9756281 | 7 57·5 | 248 47 0·6 | 1 42 45·6 |
| 26 | 16 8 46·10 | 19 9 24·5 | ·9762771 | 7 53·5 | 248 48 49·8 | 1 42 42·2 |
| 27 | 16 8 41·04 | 19 9 24·6 | ·9769318 | 7 49·5 | 248 50 39·0 | 1 42 38·7 |
| 28 | 16 8 36·36 | 19 9 25·8 | ·9775919 | 7 45·5 | 248 52 28·1 | 1 42 35·3 |
| 29 | 16 8 32·06 | 19 9 28·1 | ·9782573 | 7 41·4 | 248 54 17·2 | 1 42 31·8 |
| 30 | 16 8 28·15 | 19 9 31·4 | ·9789278 | 7 37·4 | 248 56 6·3 | 1 42 28·4 |
| 31 | 16 8 24·63 | 19 9 35·8 | ·9796031 | 7 33·4 | 248 57 55·4 | 1 42 25·0 |
| 32 | 16 8 21·51 | S. 19 9 41·2 | 0·9802832 | 7 29·5 | 248 59 44·4 | N. 1 42 21·5 |

# JULY, 1839.

At Transit over the Meridian of Greenwich.

| Month. | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|---|
| | h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| | 16 12 43 ·85 | — 0 ·57 | 0 ·62 | S. 19 14 45 ·3 | + 1 ·0 | 8 ·2 | 0 ·9 |
| | 16 12 30 ·39 | 0 ·56 | 0 ·62 | 19 14 21 ·2 | 1 ·0 | 8 ·2 | 0 ·9 |
| | 16 12 17 ·20 | 0 ·54 | 0 ·62 | 19 13 58 ·0 | 1 ·0 | 8 ·2 | 0 ·9 |
| | 16 12 4 ·30 | 0 ·53 | 0 ·62 | 19 13 35 ·6 | 0 ·9 | 8 ·2 | 0 ·9 |
| | 16 11 51 ·71 | 0 ·52 | 0 ·62 | 19 13 14 ·1 | 0 ·9 | 8 ·2 | 0 ·9 |
| | 16 11 39 ·42 | 0 ·51 | 0 ·61 | 19 12 53 ·4 | 0 ·8 | 8 ·2 | 0 ·9 |
| | 16 11 27 ·45 | 0 ·49 | 0 ·61 | 19 12 33 ·7 | 0 ·8 | 8 ·1 | 0 ·9 |
| | 16 11 15 ·79 | 0 ·48 | 0 ·61 | 19 12 14 ·9 | 0 ·8 | 8 ·1 | 0 ·9 |
| | 16 11 4 ·42 | 0 ·47 | 0 ·61 | 19 11 57 ·0 | 0 ·7 | 8 ·1 | 0 ·9 |
| | 16 10 53 ·38 | 0 ·45 | 0 ·61 | 19 11 40 ·0 | 0 ·7 | 8 ·1 | 0 ·9 |
| | 16 10 42 ·67 | 0 ·44 | 0 ·61 | 19 11 24 ·0 | 0 ·6 | 8 ·1 | 0 ·9 |
| | 16 10 32 ·29 | 0 ·43 | 0 ·61 | 19 11 9 ·0 | 0 ·6 | 8 ·1 | 0 ·9 |
| | 16 10 22 ·26 | 0 ·41 | 0 ·61 | 19 10 54 ·9 | 0 ·6 | 8 ·1 | 0 ·9 |
| | 16 10 12 ·58 | 0 ·40 | 0 ·61 | 19 10 41 ·8 | 0 ·5 | 8 ·1 | 0 ·9 |
| | 16 10 3 ·24 | 0 ·38 | 0 ·61 | 19 10 29 ·7 | 0 ·5 | 8 ·1 | 0 ·9 |
| | 16 9 54 ·24 | 0 ·37 | 0 ·61 | 19 10 18 ·6 | 0 ·4 | 8 ·1 | 0 ·9 |
| | 16 9 45 ·60 | 0 ·35 | 0 ·61 | 19 10 8 ·4 | 0 ·4 | 8 ·1 | 0 ·9 |
| | 16 9 37 ·32 | 0 ·34 | 0 ·61 | 19 9 59 ·3 | 0 ·4 | 8 ·0 | 0 ·9 |
| | 16 9 29 ·40 | 0 ·32 | 0 ·61 | 19 9 51 ·3 | 0 ·3 | 8 ·0 | 0 ·9 |
| | 16 9 21 ·85 | 0 ·31 | 0 ·61 | 19 9 44 ·3 | 0 ·3 | 8 ·0 | 0 ·9 |
| | 16 9 14 ·68 | 0 ·29 | 0 ·61 | 19 9 38 ·3 | 0 ·2 | 8 ·0 | 0 ·9 |
| | 16 9 7 ·88 | 0 ·28 | 0 ·61 | 19 9 33 ·4 | 0 ·2 | 8 ·0 | 0 ·9 |
| | 16 9 1 ·45 | 0 ·26 | 0 ·61 | 19 9 29 ·6 | 0 ·1 | 8 ·0 | 0 ·9 |
| | 16 8 55 ·40 | 0 ·24 | 0 ·60 | 19 9 26 ·9 | 0 ·1 | 8 ·0 | 0 ·9 |
| | 16 8 49 ·71 | 0 ·23 | 0 ·60 | 19 9 25 ·1 | + 0 ·1 | 8 ·0 | 0 ·9 |
| | 16 8 44 ·40 | 0 ·21 | 0 ·60 | 19 9 24 ·4 | 0 ·0 | 7 ·9 | 0 ·9 |
| | 16 8 39 ·47 | 0 ·20 | 0 ·60 | 19 9 24 ·9 | 0 ·0 | 7 ·9 | 0 ·9 |
| | 16 8 34 ·93 | 0 ·18 | 0 ·60 | 19 9 26 ·5 | — 0 ·1 | 7 ·9 | 0 ·9 |
| | 16 8 30 ·77 | 0 ·17 | 0 ·60 | 19 9 29 ·1 | 0 ·1 | 7 ·9 | 0 ·9 |
| | 16 8 27 ·00 | 0 ·15 | 0 ·60 | 19 9 32 ·8 | 0 ·2 | 7 ·9 | 0 ·9 |
| | 16 8 23 ·61 | 0 ·13 | 0 ·60 | 19 9 37 ·5 | 0 ·2 | 7 ·9 | 0 ·9 |
| | 16 8 20 ·62 | — 0 ·12 | 0 ·60 | S. 19 9 43 ·2 | — 0 ·3 | 7 ·9 | 0 ·9 |

# AUGUST, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. Apparent Right Ascension. Noon. | Geocentric. Apparent Declination. Noon. | Geocentric. Log. of True Dist. from the Earth. Noon. | Geocentric. Meridian Passage. | Heliocentric. Longitude. Noon. | Heliocentric. Latitude. Noon. |
|---|---|---|---|---|---|---|
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ |
| 1 | 16 8 21·51 | S.19 9 41·2 | 0·9802832 | 7 29·5 | 248 59 44·4 | N.1 42 21·5 |
| 2 | 16 8 18·78 | 19 9 47·8 | ·9809678 | 7 25·5 | 249 1 33·5 | 1 42 18·1 |
| 3 | 16 8 16·46 | 19 9 55·5 | ·9816565 | 7 21·5 | 249 3 22·7 | 1 42 14·6 |
| 4 | 16 8 14·53 | 19 10 4·3 | ·9823492 | 7 17·6 | 249 5 11·9 | 1 42 11·1 |
| 5 | 16 8 13·01 | 19 10 14·2 | ·9830457 | 7 13·6 | 249 7 1·1 | 1 42 7·7 |
| 6 | 16 8 11·89 | 19 10 25·2 | ·9837456 | 7 9·7 | 249 8 50·3 | 1 42 4·2 |
| 7 | 16 8 11·17 | 19 10 37·4 | ·9844490 | 7 5·7 | 249 10 39·5 | 1 42 0·8 |
| 8 | 16 8 10·85 | 19 10 50·7 | ·9851555 | 7 1·8 | 249 12 28·7 | 1 41 57·3 |
| 9 | 16 8 10·94 | 19 11 5·1 | ·9858648 | 6 57·9 | 249 14 17·9 | 1 41 53·8 |
| 10 | 16 8 11·43 | 19 11 20·7 | ·9865769 | 6 53·9 | 249 16 7·0 | 1 41 50·4 |
| 11 | 16 8 12·32 | 19 11 37·3 | ·9872914 | 6 50·0 | 249 17 56·0 | 1 41 46·9 |
| 12 | 16 8 13·62 | 19 11 55·0 | ·9880079 | 6 46·1 | 249 19 45·0 | 1 41 43·4 |
| 13 | 16 8 15·32 | 19 12 13·7 | ·9887264 | 6 42·2 | 249 21 34·0 | 1 41 40·0 |
| 14 | 16 8 17·43 | 19 12 33·6 | ·9894467 | 6 38·3 | 249 23 23·1 | 1 41 36·5 |
| 15 | 16 8 19·95 | 19 12 54·6 | ·9901683 | 6 34·4 | 249 25 12·1 | 1 41 33·0 |
| 16 | 16 8 22·87 | 19 13 16·6 | ·9908913 | 6 30·5 | 249 27 1·2 | 1 41 29·5 |
| 17 | 16 8 26·20 | 19 13 39·7 | ·9916153 | 6 26·7 | 249 28 50·3 | 1 41 26·1 |
| 18 | 16 8 29·94 | 19 14 3·8 | ·9923400 | 6 22·8 | 249 30 39·4 | 1 41 22·6 |
| 19 | 16 8 34·08 | 19 14 28·9 | ·9930653 | 6 18·9 | 249 32 28·6 | 1 41 19·1 |
| 20 | 16 8 38·63 | 19 14 55·2 | ·9937910 | 6 15·1 | 249 34 17·7 | 1 41 15·6 |
| 21 | 16 8 43·58 | 19 15 22·5 | ·9945169 | 6 11·2 | 249 36 6·9 | 1 41 12·1 |
| 22 | 16 8 48·92 | 19 15 50·9 | ·9952429 | 6 7·4 | 249 37 56·1 | 1 41 8·6 |
| 23 | 16 8 54·65 | 19 16 20·2 | ·9959689 | 6 3·6 | 249 39 45·2 | 1 41 5·2 |
| 24 | 16 9 0·76 | 19 16 50·5 | ·9966945 | 5 59·8 | 249 41 34·2 | 1 41 1·7 |
| 25 | 16 9 7·27 | 19 17 21·8 | ·9974197 | 5 55·9 | 249 43 23·2 | 1 40 58·2 |
| 26 | 16 9 14·18 | 19 17 54·1 | ·9981440 | 5 52·1 | 249 45 12·2 | 1 40 54·7 |
| 27 | 16 9 21·47 | 19 18 27·4 | ·9988674 | 5 48·3 | 249 47 1·1 | 1 40 51·2 |
| 28 | 16 9 29·16 | 19 19 1·7 | 0·9995898 | 5 44·5 | 249 48 50·1 | 1 40 47·7 |
| 29 | 16 9 37·24 | 19 19 36·9 | 1·0003111 | 5 40·7 | 249 50 39·1 | 1 40 44·2 |
| 30 | 16 9 45·71 | 19 20 13·1 | ·0010309 | 5 36·9 | 249 52 28·2 | 1 40 40·7 |
| 31 | 16 9 54·57 | 19 20 50·2 | ·0017491 | 5 33·1 | 249 54 17·2 | 1 40 37·2 |
| [illegible] | [illegible]0 3·82 | S.19 21 28·3 | 1·0024655 | 5 29·3 | 249 56 6·3 | N.1 40 33·7 |

# AUGUST, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 16 8 20 ·62 | — 0 ·12 | 0 ·60 | S. 19 9 43 ·2 | — 0 ·3 | 7 ·9 | 0 ·9 |
| 16 8 18 ·02 | 0 ·10 | 0 ·60 | 19 9 50 ·1 | 0 ·3 | 7 ·9 | 0 ·9 |
| 16 8 15 ·83 | 0 ·08 | 0 ·60 | 19 9 58 ·1 | 0 ·4 | 7 ·8 | 0 ·9 |
| 16 8 14 ·03 | 0 ·07 | 0 ·60 | 19 10 7 ·2 | 0 ·4 | 7 ·8 | 0 ·9 |
| 16 8 12 ·64 | 0 ·05 | 0 ·60 | 19 10 17 ·4 | 0 ·4 | 7 ·8 | 0 ·9 |
| 16 8 11 ·64 | 0 ·04 | 0 ·60 | 19 10 28 ·7 | 0 ·5 | 7 ·8 | 0 ·9 |
| 16 8 11 ·04 | — 0 ·02 | 0 ·59 | 19 10 41 ·2 | 0 ·5 | 7 ·8 | 0 ·9 |
| 16 8 10 ·84 | 0 ·00 | 0 ·59 | 19 10 54 ·8 | 0 ·6 | 7 ·8 | 0 ·9 |
| 16 8 11 ·05 | + 0 ·02 | 0 ·59 | 19 11 9 ·5 | 0 ·6 | 7 ·8 | 0 ·9 |
| 16 8 11 ·65 | 0 ·03 | 0 ·59 | 19 11 25 ·4 | 0 ·7 | 7 ·8 | 0 ·9 |
| 16 8 12 ·65 | 0 ·05 | 0 ·59 | 19 11 42 ·3 | 0 ·7 | 7 ·7 | 0 ·9 |
| 16 8 14 ·06 | 0 ·07 | 0 ·58 | 19 12 0 ·2 | 0 ·8 | 7 ·7 | 0 ·9 |
| 16 8 15 ·87 | 0 ·08 | 0 ·58 | 19 12 19 ·2 | 0 ·8 | 7 ·7 | 0 ·9 |
| 16 8 18 ·09 | 0 ·10 | 0 ·58 | 19 12 39 ·4 | 0 ·9 | 7 ·7 | 0 ·9 |
| 16 8 20 ·71 | 0 ·11 | 0 ·58 | 19 13 0 ·6 | 0 ·9 | 7 ·7 | 0 ·9 |
| 16 8 23 ·73 | 0 ·13 | 0 ·58 | 19 13 22 ·8 | 0 ·9 | 7 ·7 | 0 ·9 |
| 16 8 27 ·16 | 0 ·15 | 0 ·58 | 19 13 46 ·1 | 1 ·0 | 7 ·7 | 0 ·9 |
| 16 8 31 ·00 | 0 ·17 | 0 ·58 | 19 14 10 ·4 | 1 ·0 | 7 ·7 | 0 ·9 |
| 16 8 35 ·24 | 0 ·18 | 0 ·57 | 19 14 35 ·7 | 1 ·1 | 7 ·7 | 0 ·9 |
| 16 8 39 ·88 | 0 ·20 | 0 ·57 | 19 15 2 ·2 | 1 ·1 | 7 ·6 | 0 ·9 |
| 16 8 44 ·91 | 0 ·22 | 0 ·57 | 19 15 29 ·8 | 1 ·2 | 7 ·6 | 0 ·9 |
| 16 8 50 ·34 | 0 ·23 | 0 ·57 | 19 15 58 ·3 | 1 ·2 | 7 ·6 | 0 ·9 |
| 16 8 56 ·15 | 0 ·25 | 0 ·57 | 19 16 27 ·8 | 1 ·2 | 7 ·6 | 0 ·9 |
| 16 9 2 ·35 | 0 ·26 | 0 ·57 | 19 16 58 ·2 | 1 ·3 | 7 ·6 | 0 ·9 |
| 16 9 8 ·94 | 0 ·28 | 0 ·57 | 19 17 29 ·7 | 1 ·3 | 7 ·6 | 0 ·9 |
| 16 9 15 ·92 | 0 ·30 | 0 ·57 | 19 18 2 ·2 | 1 ·4 | 7 ·6 | 0 ·9 |
| 16 9 23 ·29 | 0 ·31 | 0 ·57 | 19 18 35 ·6 | 1 ·4 | 7 ·5 | 0 ·9 |
| 16 9 31 ·05 | 0 ·33 | 0 ·57 | 19 19 10 ·0 | 1 ·5 | 7 ·5 | 0 ·9 |
| 16 9 39 ·20 | 0 ·35 | 0 ·57 | 19 19 45 ·4 | 1 ·5 | 7 ·5 | 0 ·9 |
| 16 9 47 ·74 | 0 ·36 | 0 ·56 | 19 20 21 ·7 | 1 ·5 | 7 ·5 | 0 ·9 |
| 16 9 56 ·67 | 0 ·38 | 0 ·56 | 19 20 58 ·9 | 1 ·6 | 7 ·5 | 0 ·9 |
| 16 10 5 ·98 | + 0 ·40 | 0 ·56 | S. 19 21 37 ·1 | — 1 ·6 | 7 ·5 | 0 ·9 |

# SEPTEMBER, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | R |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 16 10 3·82 | S. 19 21 28·3 | 1·0024655 | 5 29·3 | 249 56 6·3 | N. 1 40 33·7 | 1· |
| 2 | 16 10 13·45 | 19 22 7·3 | ·0031799 | 5 25·6 | 249 57 55·5 | 1 40 30·2 | · |
| 3 | 16 10 23·46 | 19 22 47·2 | ·0038923 | 5 21·8 | 249 59 44·6 | 1 40 26·7 | · |
| 4 | 16 10 33·85 | 19 23 28·1 | ·0046025 | 5 18·0 | 250 1 33·7 | 1 40 23·2 | · |
| 5 | 16 10 44·61 | 19 24 9·9 | ·0053101 | 5 14·3 | 250 3 22·8 | 1 40 19·7 | · |
| 6 | 16 10 55·75 | 19 24 52·5 | ·0060150 | 5 10·5 | 250 5 11·8 | 1 40 16·2 | · |
| 7 | 16 11 7·26 | 19 25 36·0 | ·0067170 | 5 6·8 | 250 7 0·8 | 1 40 12·7 | · |
| 8 | 16 11 19·14 | 19 26 20·3 | ·0074158 | 5 3·1 | 250 8 49·7 | 1 40 9·1 | · |
| 9 | 16 11 31·39 | 19 27 5·5 | ·0081114 | 4 59·3 | 250 10 38·6 | 1 40 5·6 | · |
| 10 | 16 11 44·01 | 19 27 51·5 | ·0088037 | 4 55·6 | 250 12 27·5 | 1 40 2·1 | · |
| 11 | 16 11 57·00 | 19 28 38·3 | ·0094924 | 4 51·9 | 250 14 16·5 | 1 39 58·6 | · |
| 12 | 16 12 10·35 | 19 29 25·8 | ·0101774 | 4 48·2 | 250 16 5·5 | 1 39 55·1 | · |
| 13 | 16 12 24·06 | 19 30 14·1 | ·0108584 | 4 44·5 | 250 17 54·5 | 1 39 51·5 | · |
| 14 | 16 12 38·12 | 19 31 3·2 | ·0115353 | 4 40·8 | 250 19 43·5 | 1 39 48·0 | · |
| 15 | 16 12 52·54 | 19 31 53·0 | ·0122080 | 4 37·1 | 250 21 32·6 | 1 39 44·5 | · |
| 16 | 16 13 7·31 | 19 32 43·6 | ·0128763 | 4 33·4 | 250 23 21·7 | 1 39 41·0 | · |
| 17 | 16 13 22·42 | 19 33 35·0 | ·0135400 | 4 29·7 | 250 25 10·7 | 1 39 37·4 | · |
| 18 | 16 13 37·88 | 19 34 27·0 | ·0141990 | 4 26·1 | 250 26 59·8 | 1 39 33·9 | · |
| 19 | 16 13 53·67 | 19 35 19·7 | ·0148532 | 4 22·4 | 250 28 48·8 | 1 39 30·4 | · |
| 20 | 16 14 9·79 | 19 36 13·0 | ·0155024 | 4 18·7 | 250 30 37·8 | 1 39 26·8 | · |
| 21 | 16 14 26·24 | 19 37 7·0 | ·0161467 | 4 15·1 | 250 32 26·8 | 1 39 23·3 | · |
| 22 | 16 14 43·02 | 19 38 1·7 | ·0167857 | 4 11·4 | 250 34 15·7 | 1 39 19·8 | · |
| 23 | 16 15 0·12 | 19 38 56·9 | ·0174194 | 4 7·8 | 250 36 4·5 | 1 39 16·2 | · |
| 24 | 16 15 17·54 | 19 39 52·7 | ·0180477 | 4 4·1 | 250 37 53·4 | 1 39 12·7 | · |
| 25 | 16 15 35·28 | 19 40 49·0 | ·0186705 | 4 0·5 | 250 39 42·3 | 1 39 9·2 | · |
| 26 | 16 15 53·34 | 19 41 45·9 | ·0192875 | 3 56·9 | 250 41 31·2 | 1 39 5·6 | · |
| 27 | 16 16 11·71 | 19 42 43·4 | ·0198988 | 3 53·2 | 250 43 20·2 | 1 39 2·1 | · |
| 28 | 16 16 30·40 | 19 43 41·5 | ·0205043 | 3 49·6 | 250 45 9·3 | 1 38 58·5 | · |
| 29 | 16 16 49·39 | 19 44 40·1 | ·0211037 | 3 46·0 | 250 46 58·3 | 1 38 55·0 | · |
| 30 | 16 17 8·69 | 19 45 39·2 | ·0216969 | 3 42·4 | 250 48 47·4 | 1 38 51·4 | · |
| 31 | 16 17 28·29 | S. 19 46 38·9 | 1·0222837 | 3 38·8 | 250 50 36·4 | N. 1 38 47·9 | 1· |

# SEPTEMBER, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 16 10 5 ·98 | + 0 ·40 | 0 ·56 | S. 19 21 37 ·1 | — 1 ·6 | 7 ·5 | 0 ·9 |
| 16 10 15 ·67 | 0 ·41 | 0 ·56 | 19 22 16 ·2 | 1 ·6 | 7 ·5 | 0 ·9 |
| 16 10 25 ·74 | 0 ·43 | 0 ·56 | 19 22 56 ·2 | 1 ·7 | 7 ·5 | 0 ·9 |
| 16 10 36 ·19 | 0 ·44 | 0 ·56 | 19 23 37 ·2 | 1 ·7 | 7 ·4 | 0 ·8 |
| 16 10 47 ·01 | 0 ·46 | 0 ·56 | 19 24 19 ·1 | 1 ·8 | 7 ·4 | 0 ·8 |
| 16 10 58 ·20 | 0 ·47 | 0 ·56 | 19 25 1 ·8 | 1 ·8 | 7 ·4 | 0 ·8 |
| 16 11 9 ·76 | 0 ·49 | 0 ·56 | 19 25 45 ·4 | 1 ·8 | 7 ·4 | 0 ·8 |
| 16 11 21 ·69 | 0 ·50 | 0 ·56 | 19 26 29 ·8 | 1 ·9 | 7 ·4 | 0 ·8 |
| 16 11 33 ·98 | 0 ·52 | 0 ·55 | 19 27 15 ·0 | 1 ·9 | 7 ·4 | 0 ·8 |
| 16 11 46 ·64 | 0 ·54 | 0 ·55 | 19 28 1 ·0 | 1 ·9 | 7 ·4 | 0 ·8 |
| 16 11 59 ·67 | 0 ·55 | 0 ·55 | 19 28 47 ·8 | 2 ·0 | 7 ·4 | 0 ·8 |
| 16 12 13 ·06 | 0 ·56 | 0 ·55 | 19 29 35 ·4 | 2 ·0 | 7 ·4 | 0 ·8 |
| 16 12 26 ·81 | 0 ·58 | 0 ·55 | 19 30 23 ·7 | 2 ·0 | 7 ·4 | 0 ·8 |
| 16 12 40 ·90 | 0 ·59 | 0 ·55 | 19 31 12 ·8 | 2 ·1 | 7 ·3 | 0 ·8 |
| 16 12 55 ·35 | 0 ·61 | 0 ·55 | 19 32 2 ·6 | 2 ·1 | 7 ·3 | 0 ·8 |
| 16 13 10 ·15 | 0 ·62 | 0 ·55 | 19 32 53 ·2 | 2 ·1 | 7 ·3 | 0 ·8 |
| 16 13 25 ·30 | 0 ·64 | 0 ·55 | 19 33 44 ·6 | 2 ·2 | 7 ·3 | 0 ·8 |
| 16 13 40 ·78 | 0 ·65 | 0 ·55 | 19 34 36 ·6 | 2 ·2 | 7 ·3 | 0 ·8 |
| 16 13 56 ·59 | 0 ·67 | 0 ·55 | 19 35 29 ·3 | 2 ·2 | 7 ·3 | 0 ·8 |
| 16 14 12 ·73 | 0 ·68 | 0 ·55 | 19 36 22 ·6 | 2 ·2 | 7 ·3 | 0 ·8 |
| 16 14 29 ·19 | 0 ·69 | 0 ·55 | 19 37 16 ·6 | 2 ·3 | 7 ·2 | 0 ·8 |
| 16 14 45 ·98 | 0 ·71 | 0 ·55 | 19 38 11 ·3 | 2 ·3 | 7 ·2 | 0 ·8 |
| 16 15 3 ·10 | 0 ·72 | 0 ·54 | 19 39 6 ·5 | 2 ·3 | 7 ·2 | 0 ·8 |
| 16 15 20 ·53 | 0 ·73 | 0 ·54 | 19 40 2 ·2 | 2 ·3 | 7 ·2 | 0 ·8 |
| 16 15 38 ·28 | 0 ·75 | 0 ·54 | 19 40 58 ·5 | 2 ·4 | 7 ·2 | 0 ·8 |
| 16 15 56 ·35 | 0 ·76 | 0 ·54 | 19 41 55 ·3 | 2 ·4 | 7 ·2 | 0 ·8 |
| 16 16 14 ·72 | 0 ·77 | 0 ·54 | 19 42 52 ·8 | 2 ·4 | 7 ·2 | 0 ·8 |
| 16 16 33 ·41 | 0 ·79 | 0 ·54 | 19 43 50 ·8 | 2 ·4 | 7 ·2 | 0 ·8 |
| 16 16 52 ·40 | 0 ·80 | 0 ·54 | 19 44 49 ·4 | 2 ·5 | 7 ·2 | 0 ·8 |
| 16 17 11 ·70 | 0 ·81 | 0 ·54 | 19 45 48 ·4 | 2 ·5 | 7 ·1 | 0 ·8 |
| 16 17 31 ·30 | +0 ·82 | 0 ·54 | S. 19 46 48 ·0 | — 2 ·5 | 7 ·1 | 0 ·8 |

# OCTOBER, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Radius |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 16 17 28·29 | S. 19 46 38·9 | 1·0222837 | 3 38·8 | 250 50 36·4 | N. 1 38 47·9 | 1·00 |
| 2 | 16 17 48·19 | 19 47 39·0 | ·0228640 | 3 35·2 | 250 52 25·4 | 1 38 44·3 | ·00 |
| 3 | 16 18 8·39 | 19 48 39·6 | ·0234377 | 3 31·6 | 250 54 14·3 | 1 38 40·8 | ·00 |
| 4 | 16 18 28·87 | 19 49 40·6 | ·0240049 | 3 28·0 | 250 56 3·2 | 1 38 37·2 | ·00 |
| 5 | 16 18 49·63 | 19 50 42·0 | ·0245652 | 3 24·4 | 250 57 52·1 | 1 38 33·7 | ·00 |
| 6 | 16 19 10·68 | 19 51 43·9 | ·0251187 | 3 20·8 | 250 59 41·0 | 1 38 30·1 | ·00 |
| 7 | 16 19 32·01 | 19 52 46·1 | ·0256651 | 3 17·3 | 251 1 29·8 | 1 38 26·6 | ·00 |
| 8 | 16 19 53·61 | 19 53 48·6 | ·0262043 | 3 13·7 | 251 3 18·7 | 1 38 23·0 | ·00 |
| 9 | 16 20 15·48 | 19 54 51·5 | ·0267363 | 3 10·1 | 251 5 7·6 | 1 38 19·4 | ·00 |
| 10 | 16 20 37·62 | 19 55 54·7 | ·0272608 | 3 6·5 | 251 6 56·5 | 1 38 15·9 | ·00 |
| 11 | 16 21 0·03 | 19 56 58·2 | ·0277777 | 3 3·0 | 251 8 45·5 | 1 38 12·3 | ·00 |
| 12 | 16 21 22·70 | 19 58 2·1 | ·0282870 | 2 59·4 | 251 10 34·5 | 1 38 8·7 | ·00 |
| 13 | 16 21 45·62 | 19 59 6·3 | ·0287887 | 2 55·9 | 251 12 23·5 | 1 38 5·2 | ·00 |
| 14 | 16 22 8·79 | 20 0 10·7 | ·0292826 | 2 52·3 | 251 14 12·5 | 1 38 1·6 | ·00 |
| 15 | 16 22 32·21 | 20 1 15·4 | ·0297686 | 2 48·8 | 251 16 1·5 | 1 37 58·0 | ·00 |
| 16 | 16 22 55·87 | 20 2 20·3 | ·0302467 | 2 45·3 | 251 17 50·5 | 1 37 54·5 | ·00 |
| 17 | 16 23 19·76 | 20 3 25·4 | ·0307167 | 2 41·7 | 251 19 39·4 | 1 37 50·9 | ·00 |
| 18 | 16 23 43·88 | 20 4 30·7 | ·0311787 | 2 38·2 | 251 21 28·3 | 1 37 47·3 | ·00 |
| 19 | 16 24 8·22 | 20 5 36·2 | ·0316324 | 2 34·7 | 251 23 17·2 | 1 37 43·7 | ·00 |
| 20 | 16 24 32·78 | 20 6 41·8 | ·0320778 | 2 31·2 | 251 25 6·0 | 1 37 40·2 | ·00 |
| 21 | 16 24 57·57 | 20 7 47·6 | ·0325149 | 2 27·6 | 251 26 54·8 | 1 37 36·6 | ·00 |
| 22 | 16 25 22·58 | 20 8 53·4 | ·0329436 | 2 24·1 | 251 28 43·6 | 1 37 33·0 | ·00 |
| 23 | 16 25 47·80 | 20 9 59·3 | ·0333638 | 2 20·6 | 251 30 32·5 | 1 37 29·4 | ·00 |
| 24 | 16 26 13·22 | 20 11 5·4 | ·0337754 | 2 17·1 | 251 32 21·4 | 1 37 25·8 | ·00 |
| 25 | 16 26 38·86 | 20 12 11·5 | ·0341786 | 2 13·6 | 251 34 10·4 | 1 37 22·3 | ·00 |
| 26 | 16 27 4·70 | 20 13 17·8 | ·0345730 | 2 10·1 | 251 35 59·4 | 1 37 18·7 | ·00 |
| 27 | 16 27 30·73 | 20 14 24·1 | ·0349587 | 2 6·6 | 251 37 48·4 | 1 37 15·1 | ·00 |
| 28 | 16 27 56·95 | 20 15 30·5 | ·0353354 | 2 3·1 | 251 39 37·4 | 1 37 11·5 | ·00 |
| 29 | 16 28 23·36 | 20 16 36·9 | ·0357032 | 1 59·6 | 251 41 26·3 | 1 37 7·9 | ·00 |
| 30 | 16 28 49·95 | 20 17 43·3 | ·0360621 | 1 56·1 | 251 43 15·2 | 1 37 4·3 | ·00 |
| 31 | 16 29 16·72 | 20 18 49·7 | ·0364123 | 1 52·6 | 251 45 4·1 | 1 37 0·7 | ·00 |
| 32 | 16 29 43·67 | S. 20 19 56·0 | 1·0367534 | 1 49·1 | 251 46 53·0 | N. 1 36 57·1 | 1·00 |

# OCTOBER, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 17 31 ·30 | + 0 ·82 | 0 ·54 | S. 19 46 48 ·0 | — 2 ·5 | 7 ·1 | 0 ·8 |
| 17 51 ·19 | 0 ·83 | 0 ·54 | 19 47 48 ·1 | 2 ·5 | 7 ·1 | 0 ·8 |
| 18 11 ·38 | 0 ·85 | 0 ·54 | 19 48 48 ·6 | 2 ·5 | 7 ·1 | 0 ·8 |
| 18 31 ·85 | 0 ·86 | 0 ·54 | 19 49 49 ·5 | 2 ·5 | 7 ·1 | 0 ·8 |
| 18 52 ·60 | 0 ·87 | 0 ·54 | 19 50 50 ·8 | 2 ·6 | 7 ·1 | 0 ·8 |
| 19 13 ·63 | 0 ·88 | 0 ·54 | 19 51 52 ·6 | 2 ·6 | 7 ·1 | 0 ·8 |
| 19 34 ·94 | 0 ·89 | 0 ·54 | 19 52 54 ·7 | 2 ·6 | 7 ·1 | 0 ·8 |
| 19 56 ·53 | 0 ·91 | 0 ·54 | 19 53 57 ·1 | 2 ·6 | 7 ·1 | 0 ·8 |
| 20 18 ·38 | 0 ·92 | 0 ·54 | 19 54 59 ·8 | 2 ·6 | 7 ·1 | 0 ·8 |
| 20 40 ·51 | 0 ·93 | 0 ·54 | 19 56 2 ·9 | 2 ·6 | 7 ·1 | 0 ·8 |
| 21 2 ·90 | 0 ·94 | 0 ·54 | 19 57 6 ·3 | 2 ·6 | 7 ·1 | 0 ·8 |
| 21 25 ·55 | 0 ·95 | 0 ·54 | 19 58 10 ·1 | 2 ·7 | 7 ·1 | 0 ·8 |
| 21 48 ·44 | 0 ·96 | 0 ·53 | 19 59 14 ·2 | 2 ·7 | 7 ·1 | 0 ·8 |
| 22 11 ·58 | 0 ·97 | 0 ·53 | 20 0 18 ·5 | 2 ·7 | 7 ·0 | 0 ·8 |
| 22 34 ·97 | 0 ·98 | 0 ·53 | 20 1 23 ·0 | 2 ·7 | 7 ·0 | 0 ·8 |
| 22 58 ·60 | 0 ·99 | 0 ·53 | 20 2 27 ·8 | 2 ·7 | 7 ·0 | 0 ·8 |
| 23 22 ·46 | 1 ·00 | 0 ·53 | 20 3 32 ·7 | 2 ·7 | 7 ·0 | 0 ·8 |
| 23 46 ·54 | 1 ·01 | 0 ·53 | 20 4 37 ·9 | 2 ·7 | 7 ·0 | 0 ·8 |
| 24 10 ·85 | 1 ·02 | 0 ·53 | 20 5 43 ·3 | 2 ·7 | 7 ·0 | 0 ·8 |
| 24 35 ·38 | 1 ·03 | 0 ·53 | 20 6 48 ·7 | 2 ·7 | 7 ·0 | 0 ·8 |
| 25 0 ·12 | 1 ·04 | 0 ·53 | 20 7 54 ·3 | 2 ·7 | 7 ·0 | 0 ·8 |
| 25 25 ·09 | 1 ·04 | 0 ·53 | 20 9 0 ·0 | 2 ·7 | 7 ·0 | 0 ·8 |
| 25 50 ·27 | 1 ·05 | 0 ·53 | 20 10 5 ·8 | 2 ·7 | 7 ·0 | 0 ·8 |
| 26 15 ·65 | 1 ·06 | 0 ·53 | 20 11 11 ·7 | 2 ·7 | 7 ·0 | 0 ·8 |
| 26 41 ·24 | 1 ·07 | 0 ·53 | 20 12 17 ·7 | 2 ·8 | 7 ·0 | 0 ·8 |
| 27 7 ·03 | 1 ·08 | 0 ·53 | 20 13 23 ·8 | 2 ·8 | 7 ·0 | 0 ·8 |
| 27 33 ·02 | 1 ·09 | 0 ·53 | 20 14 30 ·0 | 2 ·8 | 6 ·9 | 0 ·8 |
| 27 59 ·20 | 1 ·09 | 0 ·53 | 20 15 36 ·2 | 2 ·8 | 6 ·9 | 0 ·8 |
| 28 25 ·56 | 1 ·10 | 0 ·53 | 20 16 42 ·4 | 2 ·8 | 6 ·9 | 0 ·8 |
| 28 52 ·10 | 1 ·11 | 0 ·53 | 20 17 48 ·7 | 2 ·8 | 6 ·9 | 0 ·8 |
| 29 18 ·82 | 1 ·12 | 0 ·53 | 20 18 55 ·0 | 2 ·8 | 6 ·9 | 0 ·8 |
| 29 45 ·71 | + 1 ·12 | 0 ·53 | S. 20 20 1 ·1 | — 2 ·8 | 6 ·9 | 0 ·8 |

# NOVEMBER, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | R |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 16 29 43·67 | S.20 19 56·0 | 1·0367534 | 1 49·1 | 251 46 53·0 | N.1 36 57·1 | 1·0 |
| 2 | 16 30 10·79 | 20 21 2·3 | ·0370853 | 1 45·6 | 251 48 41·8 | 1 36 53·5 | ·0 |
| 3 | 16 30 38·07 | 20 22 8·5 | ·0374077 | 1 42·1 | 251 50 30·6 | 1 36 49·9 | ·0 |
| 4 | 16 31 5·51 | 20 23 14·6 | ·0377207 | 1 38·6 | 251 52 19·4 | 1 36 46·3 | ·0 |
| 5 | 16 31 33·11 | 20 24 20·7 | ·0380242 | 1 35·2 | 251 54 8·3 | 1 36 42·7 | ·0 |
| 6 | 16 32 0·87 | 20 25 26·6 | ·0383184 | 1 31·7 | 251 55 57·1 | 1 36 39·1 | ·0 |
| 7 | 16 32 28·78 | 20 26 32·4 | ·0386030 | 1 28·2 | 251 57 46·0 | 1 36 35·5 | ·0 |
| 8 | 16 32 56·83 | 20 27 38·1 | ·0388781 | 1 24·8 | 251 59 35·0 | 1 36 31·9 | ·0 |
| 9 | 16 33 25·03 | 20 28 43·7 | ·0391434 | 1 21·3 | 252 1 24·0 | 1 36 28·3 | ·0 |
| 10 | 16 33 53·36 | 20 29 49·1 | ·0393991 | 1 17·9 | 252 3 12·9 | 1 36 24·7 | ·0 |
| 11 | 16 34 21·82 | 20 30 54·3 | ·0396451 | 1 14·4 | 252 5 1·9 | 1 36 21·1 | ·0 |
| 12 | 16 34 50·39 | 20 31 59·3 | ·0398815 | 1 10·9 | 252 6 50·8 | 1 36 17·5 | ·0 |
| 13 | 16 35 19·08 | 20 33 4·1 | ·0401081 | 1 7·4 | 252 8 39·8 | 1 36 13·9 | ·0 |
| 14 | 16 35 47·88 | 20 34 8·7 | ·0403250 | 1 4·0 | 252 10 28·7 | 1 36 10·3 | ·0 |
| 15 | 16 36 16·79 | 20 35 13·1 | ·0405318 | 1 0·6 | 252 12 17·5 | 1 36 6·6 | ·0 |
| 16 | 16 36 45·80 | 20 36 17·2 | ·0407287 | 0 57·1 | 252 14 6·3 | 1 36 3·0 | ·0 |
| 17 | 16 37 14·90 | 20 37 21·0 | ·0409156 | 0 53·7 | 252 15 55·1 | 1 35 59·4 | ·0 |
| 18 | 16 37 44·10 | 20 38 24·5 | ·0410927 | 0 50·2 | 252 17 43·9 | 1 35 55·8 | ·0 |
| 19 | 16 38 13·39 | 20 39 27·7 | ·0412599 | 0 46·8 | 252 19 32·7 | 1 35 52·1 | ·0 |
| 20 | 16 38 42·77 | 20 40 30·6 | ·0414171 | 0 43·3 | 252 21 21·6 | 1 35 48·5 | ·0 |
| 21 | 16 39 12·24 | 20 41 33·2 | ·0415643 | 0 39·9 | 252 23 10·5 | 1 35 44·9 | ·0 |
| 22 | 16 39 41·78 | 20 42 35·5 | ·0417015 | 0 36·5 | 252 24 59·4 | 1 35 41·3 | ·0 |
| 23 | 16 40 11·39 | 20 43 37·5 | ·0418287 | 0 33·0 | 252 26 48·4 | 1 35 37·6 | ·0 |
| 24 | 16 40 41·07 | 20 44 39·1 | ·0419459 | 0 29·6 | 252 28 37·4 | 1 35 34·0 | ·0 |
| 25 | 16 41 10·81 | 20 45 40·4 | ·0420530 | 0 26·1 | 252 30 26·3 | 1 35 30·4 | ·0 |
| 26 | 16 41 40·61 | 20 46 41·4 | ·0421500 | 0 22·7 | 252 32 15·2 | 1 35 26·7 | ·0 |
| 27 | 16 42 10·46 | 20 47 42·0 | ·0422369 | 0 19·3 | 252 34 4·1 | 1 35 23·1 | ·0 |
| 28 | 16 42 40·36 | 20 48 42·2 | ·0423136 | 0 15·8 | 252 35 52·9 | 1 35 19·4 | ·0 |
| 29 | 16 43 10·31 | 20 49 42·0 | ·0423801 | 0 12·4 | 252 37 41·7 | 1 35 15·8 | ·0 |
| 30 | 16 43 40·30 | 20 50 41·3 | ·0424364 | 0 9·0 | 252 39 30·5 | 1 35 12·2 | ·0 |
| 31 | 16 44 10·32 | S.20 51 40·2 | 1·0424824 | 0 5·5 | 252 41 19·3 | N.1 35 8·5 | 1·0 |

# NOVEMBER, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 5 29 45 ·71 | + 1 ·12 | 0 ·53 | S. 20 20 1 ·1 | — 2 ·8 | 6 ·9 | 0 ·8 |
| 5 30 12 ·78 | 1 ·13 | 0 ·53 | 20 21 7 ·2 | 2 ·8 | 6 ·9 | 0 ·8 |
| 5 30 40 ·01 | 1 ·14 | 0 ·53 | 20 22 13 ·3 | 2 ·8 | 6 ·9 | 0 ·8 |
| 5 31 7 ·39 | 1 ·14 | 0 ·53 | 20 23 19 ·2 | 2 ·7 | 6 ·9 | 0 ·8 |
| 5 31 34 ·94 | 1 ·15 | 0 ·53 | 20 24 25 ·1 | 2 ·7 | 6 ·9 | 0 ·8 |
| 5 32 2 ·65 | 1 ·16 | 0 ·53 | 20 25 30 ·9 | 2 ·7 | 6 ·9 | 0 ·8 |
| 5 32 30 ·50 | 1 ·16 | 0 ·53 | 20 26 36 ·5 | 2 ·7 | 6 ·9 | 0 ·8 |
| 5 32 58 ·49 | 1 ·17 | 0 ·53 | 20 27 42 ·0 | 2 ·7 | 6 ·9 | 0 ·8 |
| 5 33 26 ·63 | 1 ·17 | 0 ·53 | 20 28 47 ·4 | 2 ·7 | 6 ·9 | 0 ·8 |
| 5 33 54 ·90 | 1 ·18 | 0 ·53 | 20 29 52 ·7 | 2 ·7 | 6 ·9 | 0 ·8 |
| 5 34 23 ·30 | 1 ·19 | 0 ·53 | 20 30 57 ·7 | 2 ·7 | 6 ·9 | 0 ·8 |
| 5 34 51 ·81 | 1 ·19 | 0 ·53 | 20 32 2 ·5 | 2 ·7 | 6 ·9 | 0 ·8 |
| 5 35 20 ·44 | 1 ·20 | 0 ·53 | 20 33 7 ·2 | 2 ·7 | 6 ·9 | 0 ·8 |
| 5 35 49 ·17 | 1 ·20 | 0 ·53 | 20 34 11 ·6 | 2 ·7 | 6 ·9 | 0 ·8 |
| 5 36 18 ·01 | 1 ·21 | 0 ·53 | 20 35 15 ·8 | 2 ·7 | 6 ·8 | 0 ·8 |
| 5 36 46 ·95 | 1 ·21 | 0 ·53 | 20 36 19 ·8 | 2 ·7 | 6 ·8 | 0 ·8 |
| 5 37 15 ·99 | 1 ·22 | 0 ·53 | 20 37 23 ·4 | 2 ·6 | 6 ·8 | 0 ·8 |
| 5 37 45 ·13 | 1 ·22 | 0 ·53 | 20 38 26 ·7 | 2 ·6 | 6 ·8 | 0 ·8 |
| 5 38 14 ·35 | 1 ·22 | 0 ·53 | 20 39 29 ·8 | 2 ·6 | 6 ·8 | 0 ·8 |
| 5 38 43 ·66 | 1 ·22 | 0 ·53 | 20 40 32 ·5 | 2 ·6 | 6 ·8 | 0 ·8 |
| 5 39 13 ·06 | 1 ·23 | 0 ·53 | 20 41 34 ·9 | 2 ·6 | 6 ·8 | 0 ·8 |
| 5 39 42 ·53 | 1 ·23 | 0 ·53 | 20 42 37 ·1 | 2 ·6 | 6 ·8 | 0 ·8 |
| 5 40 12 ·07 | 1 ·23 | 0 ·53 | 20 43 38 ·9 | 2 ·6 | 6 ·8 | 0 ·8 |
| 5 40 41 ·68 | 1 ·24 | 0 ·53 | 20 44 40 ·4 | 2 ·6 | 6 ·8 | 0 ·8 |
| 5 41 11 ·35 | 1 ·24 | 0 ·53 | 20 45 41 ·5 | 2 ·5 | 6 ·8 | 0 ·8 |
| 5 41 41 ·08 | 1 ·24 | 0 ·53 | 20 46 42 ·4 | 2 ·5 | 6 ·8 | 0 ·8 |
| 5 42 10 ·86 | 1 ·24 | 0 ·53 | 20 47 42 ·9 | 2 ·5 | 6 ·8 | 0 ·8 |
| 5 42 40 ·69 | 1 ·24 | 0 ·53 | 20 48 42 ·9 | 2 ·5 | 6 ·8 | 0 ·8 |
| 5 43 10 ·57 | 1 ·25 | 0 ·53 | 20 49 42 ·5 | 2 ·5 | 6 ·8 | 0 ·8 |
| 5 43 40 ·49 | 1 ·25 | 0 ·53 | 20 50 41 ·7 | 2 ·5 | 6 ·8 | 0 ·8 |
| 5 44 10 ·44 | + 1 ·25 | 0 ·53 | S. 20 51 40 ·4 | — 2 ·4 | 6 ·8 | 0 ·8 |

# DECEMBER, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | R |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 16 44 10·32 | S. 20 51 40·2 | 1·0424824 | 0 5·5 | 252 41 19·3 | N. 1 35 8·5 | 1· |
| 2 | 16 44 40·37 | 20 52 38·7 | ·0425181 | {0 2·1 / 23 56·7} | 252 43 8·1 | 1 35 4·9 | · |
| 3 | 16 45 10·45 | 20 53 36·8 | ·0425434 | 23 55·2 | 252 44 56·9 | 1 35 1·2 | · |
| 4 | 16 45 40·55 | 20 54 34·4 | ·0425584 | 23 51·8 | 252 46 45·8 | 1 34 57·6 | · |
| 5 | 16 46 10·67 | 20 55 31·6 | ·0425632 | 23 48·4 | 252 48 34·7 | 1 34 53·9 | · |
| 6 | 16 46 40·80 | 20 56 28·3 | ·0425577 | 23 44·9 | 252 50 23·6 | 1 34 50·3 | · |
| 7 | 16 47 10·93 | 20 57 24·4 | ·0425419 | 23 41·5 | 252 52 12·5 | 1 34 46·6 | · |
| 8 | 16 47 41·05 | 20 58 20·1 | ·0425158 | 23 38·1 | 252 54 1·5 | 1 34 43·0 | · |
| 9 | 16 48 11·17 | 20 59 15·3 | ·0424791 | 23 34·6 | 252 55 50·4 | 1 34 39·3 | · |
| 10 | 16 48 41·27 | 21 0 10·0 | ·0424322 | 23 31·2 | 252 57 39·3 | 1 34 35·7 | · |
| 11 | 16 49 11·36 | 21 1 4·3 | ·0423750 | 23 27·8 | 252 59 28·2 | 1 34 32·0 | · |
| 12 | 16 49 41·42 | 21 1 58·0 | ·0423076 | 23 24·3 | 253 1 17·0 | 1 34 28·3 | · |
| 13 | 16 50 11·45 | 21 2 51·1 | ·0422300 | 23 20·9 | 253 3 5·8 | 1 34 24·7 | · |
| 14 | 16 50 41·44 | 21 3 43·7 | ·0421422 | 23 17·5 | 253 4 54·5 | 1 34 21·0 | · |
| 15 | 16 51 11·39 | 21 4 35·7 | ·0420440 | 23 14·0 | 253 6 43·3 | 1 34 17·3 | · |
| 16 | 16 51 41·30 | 21 5 27·2 | ·0419356 | 23 10·6 | 253 8 32·0 | 1 34 13·7 | · |
| 17 | 16 52 11·17 | 21 6 18·1 | ·0418170 | 23 7·2 | 253 10 20·8 | 1 34 10·0 | · |
| 18 | 16 52 40·99 | 21 7 8·5 | ·0416883 | 23 3·7 | 253 12 9·7 | 1 34 6·3 | · |
| 19 | 16 53 10·76 | 21 7 58·3 | ·0415495 | 23 0·3 | 253 13 58·6 | 1 34 2·7 | · |
| 20 | 16 53 40·47 | 21 8 47·6 | ·0414007 | 22 56·8 | 253 15 47·6 | 1 33 59·0 | · |
| 21 | 16 54 10·11 | 21 9 36·3 | ·0412418 | 22 53·4 | 253 17 36·5 | 1 33 55·3 | · |
| 22 | 16 54 39·68 | 21 10 24·4 | ·0410729 | 22 50·0 | 253 19 25·4 | 1 33 51·7 | · |
| 23 | 16 55 9·17 | 21 11 11·9 | ·0408939 | 22 46·5 | 253 21 14·3 | 1 33 48·0 | · |
| 24 | 16 55 38·58 | 21 11 58·8 | ·0407048 | 22 43·1 | 253 23 3·1 | 1 33 44·3 | · |
| 25 | 16 56 7·90 | 21 12 45·2 | ·0405058 | 22 39·6 | 253 24 51·9 | 1 33 40·6 | · |
| 26 | 16 56 37·12 | 21 13 31·0 | ·0402969 | 22 36·1 | 253 26 40·7 | 1 33 37·0 | · |
| 27 | 16 57 6·25 | 21 14 16·2 | ·0400780 | 22 32·7 | 253 28 29·4 | 1 33 33·3 | · |
| 28 | 16 57 35·29 | 21 15 0·8 | ·0398491 | 22 29·2 | 253 30 18·2 | 1 33 29·6 | · |
| 29 | 16 58 4·22 | 21 15 44·7 | ·0396103 | 22 25·8 | 253 32 6·9 | 1 33 25·9 | · |
| 30 | 16 58 33·04 | 21 16 28·0 | ·0393616 | 22 22·4 | 253 33 55·7 | 1 33 22·3 | · |
| 31 | 16 59 1·74 | 21 17 10·6 | ·0391031 | 22 18·9 | 253 35 44·5 | 1 33 18·6 | · |
| | 9 30·33 | S. 21 17 52·6 | 1·0388347 | 22 15·4 | 253 37 33·4 | N. 1 33 14·9 | 1· |

# DECEMBER, 1839.

At Transit over the Meridian of Greenwich.

| Day of the Month. | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|---|
| | h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 1 | 16 44 10 ·44 | + 1 ·25 | 0 ·53 | S. 20 51 40 ·4 | — 2 ·4 | 6 ·8 | 0 ·8 |
| 2 | {16 44 40 ·42 / 16 45 10 ·43} | {1 ·25 / 1 ·25} | {0 ·53 / 0 ·53} | {20 52 38 ·9 / 20 53 36 ·7} | {2 ·4 / 2 ·4} | {6 ·8 / 6 ·8} | {0 ·8 / 0 ·8} |
| 3 | 16 45 40 ·46 | 1 ·25 | 0 ·53 | 20 54 34 ·2 | 2 ·4 | 6 ·8 | 0 ·8 |
| 4 | 16 46 10 ·50 | 1 ·25 | 0 ·53 | 20 55 31 ·2 | 2 ·4 | 6 ·8 | 0 ·8 |
| 5 | 16 46 40 ·55 | 1 ·25 | 0 ·53 | 20 56 27 ·8 | 2 ·3 | 6 ·8 | 0 ·8 |
| 6 | 16 47 10 ·61 | 1 ·25 | 0 ·53 | 20 57 23 ·9 | 2 ·3 | 6 ·8 | 0 ·8 |
| 7 | 16 47 40 ·67 | 1 ·25 | 0 ·53 | 20 58 19 ·4 | 2 ·3 | 6 ·8 | 0 ·8 |
| 8 | 16 48 10 ·71 | 1 ·25 | 0 ·53 | 20 59 14 ·5 | 2 ·3 | 6 ·8 | 0 ·8 |
| 9 | 16 48 40 ·74 | 1 ·25 | 0 ·53 | 21 0 9 ·1 | 2 ·3 | 6 ·8 | 0 ·8 |
| 10 | 16 49 10 ·76 | 1 ·25 | 0 ·53 | 21 1 3 ·2 | 2 ·2 | 6 ·8 | 0 ·8 |
| 11 | 16 49 40 ·75 | 1 ·25 | 0 ·53 | 21 1 56 ·8 | 2 ·2 | 6 ·8 | 0 ·8 |
| 12 | 16 50 10 ·71 | 1 ·25 | 0 ·53 | 21 2 49 ·8 | 2 ·2 | 6 ·8 | 0 ·8 |
| 13 | 16 50 40 ·63 | 1 ·25 | 0 ·53 | 21 3 42 ·2 | 2 ·2 | 6 ·8 | 0 ·8 |
| 14 | 16 51 10 ·51 | 1 ·24 | 0 ·53 | 21 4 34 ·1 | 2 ·2 | 6 ·8 | 0 ·8 |
| 15 | 16 51 40 ·35 | 1 ·24 | 0 ·53 | 21 5 25 ·5 | 2 ·1 | 6 ·8 | 0 ·8 |
| 16 | 16 52 10 ·14 | 1 ·24 | 0 ·53 | 21 6 16 ·4 | 2 ·1 | 6 ·8 | 0 ·8 |
| 17 | 16 52 39 ·89 | 1 ·24 | 0 ·53 | 21 7 6 ·7 | 2 ·1 | 6 ·8 | 0 ·8 |
| 18 | 16 53 9 ·59 | 1 ·24 | 0 ·53 | 21 7 56 ·4 | 2 ·1 | 6 ·8 | 0 ·8 |
| 19 | 16 53 39 ·23 | 1 ·23 | 0 ·53 | 21 8 45 ·6 | 2 ·0 | 6 ·8 | 0 ·8 |
| 20 | 16 54 8 ·81 | 1 ·23 | 0 ·53 | 21 9 34 ·2 | 2 ·0 | 6 ·9 | 0 ·8 |
| 21 | 16 54 38 ·31 | 1 ·23 | 0 ·53 | 21 10 22 ·2 | 2 ·0 | 6 ·9 | 0 ·8 |
| 22 | 16 55 7 ·74 | 1 ·22 | 0 ·53 | 21 11 9 ·6 | 2 ·0 | 6 ·9 | 0 ·8 |
| 23 | 16 55 37 ·08 | 1 ·22 | 0 ·53 | 21 11 56 ·4 | 1 ·9 | 6 ·9 | 0 ·8 |
| 24 | 16 56 6 ·33 | 1 ·22 | 0 ·53 | 21 12 42 ·7 | 1 ·9 | 6 ·9 | 0 ·8 |
| 25 | 16 56 35 ·49 | 1 ·21 | 0 ·53 | 21 13 28 ·4 | 1 ·9 | 6 ·9 | 0 ·8 |
| 26 | 16 57 4 ·55 | 1 ·21 | 0 ·53 | 21 14 13 ·6 | 1 ·9 | 6 ·9 | 0 ·8 |
| 27 | 16 57 33 ·52 | 1 ·21 | 0 ·53 | 21 14 58 ·1 | 1 ·8 | 6 ·9 | 0 ·8 |
| 28 | 16 58 2 ·39 | 1 ·20 | 0 ·53 | 21 15 42 ·0 | 1 ·8 | 6 ·9 | 0 ·8 |
| 29 | 16 58 31 ·15 | 1 ·20 | 0 ·53 | 21 16 25 ·2 | 1 ·8 | 6 ·9 | 0 ·8 |
| 30 | 16 58 59 ·80 | 1 ·19 | 0 ·53 | 21 17 7 ·8 | 1 ·8 | 6 ·9 | 0 ·8 |
| 31 | 16 59 28 ·33 | 1 ·19 | 0 ·53 | 21 17 49 ·7 | 1 ·7 | 6 ·9 | 0 ·8 |
| 32 | 16 59 56 ·74 | + 1 ·18 | 0 ·53 | S. 21 18 30 ·9 | — 1 ·7 | 6 ·9 | 0 ·8 |

# JANUARY, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. of Rad. Vect. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 22 44 55·81 | S. 8 45 58·3 | 1·3132687 | 4 2·5 | 341 46 25·4 | S. 0 46 29·4 | 1·3027959 |
| 2 | 22 45 3·83 | 8 45 7·8 | ·3135803 | 3 58·7 | 341 47 4·1 | 0 46 29·4 | ·3027964 |
| 3 | 22 45 12·00 | 8 44 16·4 | ·3138885 | 3 54·9 | 341 47 42·7 | 0 46 29·4 | ·3027969 |
| 4 | 22 45 20·32 | 8 43 24·2 | ·3141931 | 3 51·1 | 341 48 21·3 | 0 46 29·4 | ·3027974 |
| 5 | 22 45 28·78 | 8 42 31·1 | ·3144940 | 3 47·3 | 341 48 59·9 | 0 46 29·4 | ·3027979 |
| 6 | 22 45 37·39 | 8 41 37·1 | ·3147912 | 3 43·5 | 341 49 38·5 | 0 46 29·5 | ·3027984 |
| 7 | 22 45 46·14 | 8 40 42·2 | ·3150845 | 3 39·7 | 341 50 17·1 | 0 46 29·5 | ·3027989 |
| 8 | 22 45 55·03 | 8 39 46·5 | ·3153740 | 3 35·9 | 341 50 55·6 | 0 46 29·5 | ·3027994 |
| 9 | 22 46 4·05 | 8 38 50·0 | ·3156596 | 3 32·2 | 341 51 34·2 | 0 46 29·5 | ·3027999 |
| 10 | 22 46 13·22 | 8 37 52·6 | ·3159414 | 3 28·4 | 341 52 12·9 | 0 46 29·5 | ·3028004 |
| 11 | 22 46 22·53 | 8 36 54·4 | ·3162192 | 3 24·6 | 341 52 51·6 | 0 46 29·5 | ·3028010 |
| 12 | 22 46 31·97 | 8 35 55·5 | ·3164928 | 3 20·8 | 341 53 30·3 | 0 46 29·5 | ·3028015 |
| 13 | 22 46 41·55 | 8 34 55·7 | ·3167622 | 3 17·1 | 341 54 9·0 | 0 46 29·5 | ·3028020 |
| 14 | 22 46 51·25 | 8 33 55·2 | ·3170272 | 3 13·3 | 341 54 47·7 | 0 46 29·5 | ·3028025 |
| 15 | 22 47 1·08 | 8 32 53·9 | ·3172878 | 3 9·5 | 341 55 26·5 | 0 46 29·5 | ·3028030 |
| 16 | 22 47 11·03 | 8 31 51·9 | ·3175440 | 3 5·7 | 341 56 5·2 | 0 46 29·6 | ·3028035 |
| 17 | 22 47 21·10 | 8 30 49·2 | ·3177956 | 3 1·9 | 341 56 43·8 | 0 46 29·6 | ·3028041 |
| 18 | 22 47 31·28 | 8 29 45·9 | ·3180427 | 2 58·2 | 341 57 22·4 | 0 46 29·6 | ·3028046 |
| 19 | 22 47 41·58 | 8 28 41·9 | ·3182852 | 2 54·4 | 341 58 0·9 | 0 46 29·6 | ·3028051 |
| 20 | 22 47 51·99 | 8 27 37·1 | ·3185229 | 2 50·6 | 341 58 39·5 | 0 46 29·6 | ·3028056 |
| 21 | 22 48 2·51 | 8 26 31·6 | ·3187559 | 2 46·9 | 341 59 18·0 | 0 46 29·6 | ·3028061 |
| 22 | 22 48 13·14 | 8 25 25·5 | ·3189841 | 2 43·1 | 341 59 56·6 | 0 46 29·6 | ·3028066 |
| 23 | 22 48 23·87 | 8 24 18·8 | ·3192074 | 2 39·4 | 342 0 35·2 | 0 46 29·6 | ·3028071 |
| 24 | 22 48 34·71 | 8 23 11·4 | ·3194259 | 2 35·7 | 342 1 13·8 | 0 46 29·6 | ·3028076 |
| 25 | 22 48 45·65 | 8 22 3·5 | ·3196396 | 2 31·9 | 342 1 52·5 | 0 46 29·6 | ·3028081 |
| 26 | 22 48 56·69 | 8 20 55·0 | ·3198483 | 2 28·1 | 342 2 31·2 | 0 46 29·7 | ·3028087 |
| 27 | 22 49 7·83 | 8 19 45·9 | ·3200519 | 2 24·4 | 342 3 9·9 | 0 46 29·7 | ·3028092 |
| 28 | 22 49 19·06 | 8 18 36·3 | ·3202504 | 2 20·6 | 342 3 48·6 | 0 46 29·7 | ·3028097 |
| 29 | 22 49 30·38 | 8 17 26·1 | ·3204437 | 2 16·9 | 342 4 27·3 | 0 46 29·7 | ·3028103 |
| 30 | 22 49 41·79 | 8 16 15·4 | ·3206320 | 2 13·2 | 342 5 5·9 | 0 46 29·7 | ·3028108 |
| 31 | 22 49 53·28 | 8 15 4·2 | ·3208153 | 2 9·5 | 342 5 44·5 | 0 46 29·7 | ·3028113 |
| 32 | 22 50 4·85 | S. 8 13 52·6 | 1·3209934 | 2 5·8 | 342 6 23·0 | S. 0 46 29·7 | 1·3028118 |

# JANUARY, 1839.

At Transit over the Meridian of Greenwich.

| *pparent* Right cension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 4 57 ·14 | + 0 ·33 | 0 ·12 | S. 8 45 49 ·9 | + 2 ·1 | 1 ·8 | 0 ·4 |
| 5 5 ·17 | 0 ·34 | 0 ·12 | 8 44 59 ·4 | 2 ·1 | 1 ·8 | 0 ·4 |
| 5 13 ·35 | 0 ·34 | 0 ·12 | 8 44 8 ·0 | 2 ·2 | 1 ·8 | 0 ·4 |
| 5 21 ·67 | 0 ·35 | 0 ·12 | 8 43 15 ·8 | 2 ·2 | 1 ·8 | 0 ·4 |
| 5 30 ·13 | 0 ·35 | 0 ·12 | 8 42 22 ·7 | 2 ·2 | 1 ·8 | 0 ·4 |
| 5 38 ·74 | 0 ·36 | 0 ·12 | 8 41 28 ·7 | 2 ·3 | 1 ·8 | 0 ·4 |
| 5 47 ·49 | 0 ·37 | 0 ·12 | 8 40 33 ·8 | 2 ·3 | 1 ·8 | 0 ·4 |
| 5 56 ·37 | 0 ·37 | 0 ·12 | 8 39 38 ·1 | 2 ·3 | 1 ·8 | 0 ·4 |
| 6 5 ·39 | 0 ·38 | 0 ·12 | 8 38 41 ·6 | 2 ·4 | 1 ·8 | 0 ·4 |
| 6 14 ·56 | 0 ·38 | 0 ·12 | 8 37 44 ·2 | 2 ·4 | 1 ·8 | 0 ·4 |
| 6 23 ·86 | 0 ·39 | 0 ·12 | 8 36 46 ·1 | 2 ·4 | 1 ·8 | 0 ·4 |
| 6 33 ·30 | 0 ·40 | 0 ·12 | 8 35 47 ·2 | 2 ·5 | 1 ·8 | 0 ·4 |
| 6 42 ·87 | 0 ·40 | 0 ·12 | 8 34 47 ·5 | 2 ·5 | 1 ·8 | 0 ·4 |
| 6 52 ·56 | 0 ·41 | 0 ·12 | 8 33 47 ·0 | 2 ·5 | 1 ·8 | 0 ·4 |
| 7 2 ·38 | 0 ·41 | 0 ·12 | 8 32 45 ·8 | 2 ·6 | 1 ·8 | 0 ·4 |
| 7 12 ·32 | 0 ·42 | 0 ·12 | 8 31 43 ·9 | 2 ·6 | 1 ·8 | 0 ·4 |
| 7 22 ·37 | 0 ·42 | 0 ·12 | 8 30 41 ·3 | 2 ·6 | 1 ·8 | 0 ·4 |
| 7 32 ·54 | 0 ·43 | 0 ·12 | 8 29 38 ·1 | 2 ·7 | 1 ·8 | 0 ·4 |
| 7 42 ·83 | 0 ·43 | 0 ·12 | 8 28 34 ·1 | 2 ·7 | 1 ·8 | 0 ·4 |
| 7 53 ·22 | 0 ·44 | 0 ·12 | 8 27 29 ·4 | 2 ·7 | 1 ·8 | 0 ·4 |
| 8 3 ·73 | 0 ·44 | 0 ·12 | 8 26 24 ·0 | 2 ·7 | 1 ·8 | 0 ·4 |
| 8 14 ·35 | 0 ·44 | 0 ·12 | 8 25 18 ·0 | 2 ·8 | 1 ·8 | 0 ·4 |
| 8 25 ·07 | 0 ·45 | 0 ·12 | 8 24 11 ·4 | 2 ·8 | 1 ·8 | 0 ·4 |
| 8 35 ·89 | 0 ·45 | 0 ·12 | 8 23 4 ·2 | 2 ·8 | 1 ·8 | 0 ·4 |
| 8 46 ·81 | 0 ·46 | 0 ·12 | 8 21 56 ·4 | 2 ·8 | 1 ·8 | 0 ·4 |
| 8 57 ·84 | 0 ·46 | 0 ·12 | 8 20 47 ·9 | 2 ·9 | 1 ·8 | 0 ·4 |
| 9 8 ·96 | 0 ·47 | 0 ·12 | 8 19 38 ·9 | 2 ·9 | 1 ·8 | 0 ·4 |
| 9 20 ·17 | 0 ·47 | 0 ·12 | 8 18 29 ·4 | 2 ·9 | 1 ·8 | 0 ·4 |
| 9 31 ·46 | 0 ·47 | 0 ·12 | 8 17 19 ·4 | 2 ·9 | 1 ·8 | 0 ·4 |
| 9 42 ·85 | 0 ·48 | 0 ·12 | 8 16 8 ·8 | 3 ·0 | 1 ·8 | 0 ·4 |
| 9 54 ·32 | 0 ·48 | 0 ·12 | 8 14 57 ·8 | 3 ·0 | 1 ·8 | 0 ·4 |
| 0 5 ·86 | + 0 ·48 | 0 ·12 | S. 8 13 46 ·3 | + 3 ·0 | 1 ·8 | 0 ·4 |

# FEBRUARY, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | |
|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ |
| 1 | 22 50 4·85 | S. 8 13 52·6 | 1·3209934 | 2 5·8 | 342 6 23·0 | S. 0 46 29·7 |
| 2 | 22 50 16·49 | 8 12 40·5 | ·3211663 | 2 2·0 | 342 7 1·6 | 0 46 29·7 |
| 3 | 22 50 28·21 | 8 11 27·9 | ·3213338 | 1 58·3 | 342 7 40·1 | 0 46 29·7 |
| 4 | 22 50 40·01 | 8 10 14·9 | ·3214960 | 1 54·6 | 342 8 18·6 | 0 46 29·7 |
| 5 | 22 50 51·89 | 8 9 1·4 | ·3216529 | 1 50·8 | 342 8 57·2 | 0 46 29·8 |
| 6 | 22 51 3·84 | 8 7 47·4 | ·3218045 | 1 47·1 | 342 9 35·8 | 0 46 29·8 |
| 7 | 22 51 15·86 | 8 6 33·0 | ·3219507 | 1 43·4 | 342 10 14·4 | 0 46 29·8 |
| 8 | 22 51 27·94 | 8 5 18·3 | ·3220913 | 1 39·6 | 342 10 53·0 | 0 46 29·8 |
| 9 | 22 51 40·09 | 8 4 3·1 | ·3222263 | 1 35·9 | 342 11 31·7 | 0 46 29·8 |
| 10 | 22 51 52·30 | 8 2 47·6 | ·3223557 | 1 32·1 | 342 12 10·4 | 0 46 29·8 |
| 11 | 22 52 4·56 | 8 1 31·8 | ·3224795 | 1 28·4 | 342 12 49·1 | 0 46 29·8 |
| 12 | 22 52 16·88 | 8 0 15·7 | ·3225978 | 1 24·7 | 342 13 27·8 | 0 46 29·8 |
| 13 | 22 52 29·25 | 7 58 59·3 | ·3227105 | 1 20·9 | 342 14 6·4 | 0 46 29·8 |
| 14 | 22 52 41·67 | 7 57 42·5 | ·3228176 | 1 17·2 | 342 14 44·9 | 0 46 29·8 |
| 15 | 22 52 54·13 | 7 56 25·5 | ·3229190 | 1 13·5 | 342 15 23·4 | 0 46 29·9 |
| 16 | 22 53 6·63 | 7 55 8·3 | ·3230147 | 1 9·8 | 342 16 1·9 | 0 46 29·9 |
| 17 | 22 53 19·17 | 7 53 50·9 | ·3231048 | 1 6·1 | 342 16 40·4 | 0 46 29·9 |
| 18 | 22 53 31·75 | 7 52 33·2 | ·3231892 | 1 2·4 | 342 17 18·9 | 0 46 29·9 |
| 19 | 22 53 44·37 | 7 51 15·3 | ·3232678 | 0 58·6 | 342 17 57·5 | 0 46 29·9 |
| 20 | 22 53 57·02 | 7 49 57·1 | ·3233406 | 0 54·9 | 342 18 36·1 | 0 46 29·9 |
| 21 | 22 54 9·70 | 7 48 38·8 | ·3234077 | 0 51·2 | 342 19 14·7 | 0 46 29·9 |
| 22 | 22 54 22·41 | 7 47 20·3 | ·3234690 | 0 47·5 | 342 19 53·4 | 0 46 29·9 |
| 23 | 22 54 35·15 | 7 46 1·7 | ·3235245 | 0 43·7 | 342 20 32·1 | 0 46 29·9 |
| 24 | 22 54 47·91 | 7 44 43·0 | ·3235743 | 0 40·0 | 342 21 10·7 | 0 46 29·9 |
| 25 | 22 55 0·68 | 7 43 24·2 | ·3236184 | 0 36·3 | 342 21 49·4 | 0 46 29·9 |
| 26 | 22 55 13·46 | 7 42 5·4 | ·3236567 | 0 32·5 | 342 22 28·0 | 0 46 29·9 |
| 27 | 22 55 26·25 | 7 40 46·5 | ·3236893 | 0 28·8 | 342 23 6·5 | 0 46 29·9 |
| 28 | 22 55 39·05 | 7 39 27·6 | ·3237162 | 0 25·1 | 342 23 45·0 | 0 46 30·0 |
| 29 | 22 55 51·86 | S. 7 38 8·7 | 1·3237374 | 0 21·4 | 342 24 23·5 | S. 0 46 30·0 |

# FEBRUARY, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 2 50 5 ·86 | + 0 ·48 | 0 ·12 | S. 8 13 46 ·3 | + 3 ·0 | 1 ·8 | 0 ·4 |
| 2 50 17 ·48 | 0 ·49 | 0 ·12 | 8 12 34 ·4 | 3 ·0 | 1 ·8 | 0 ·4 |
| 2 50 29 ·18 | 0 ·49 | 0 ·12 | 8 11 22 ·0 | 3 ·0 | 1 ·8 | 0 ·4 |
| 2 50 40 ·95 | 0 ·49 | 0 ·12 | 8 10 9 ·1 | 3 ·0 | 1 ·8 | 0 ·4 |
| 2 50 52 ·80 | 0 ·50 | 0 ·12 | 8 8 55 ·7 | 3 ·1 | 1 ·8 | 0 ·4 |
| 2 51 4 ·73 | 0 ·50 | 0 ·12 | 8 7 41 ·9 | 3 ·1 | 1 ·8 | 0 ·4 |
| 2 51 16 ·73 | 0 ·50 | 0 ·12 | 8 6 27 ·7 | 3 ·1 | 1 ·8 | 0 ·4 |
| 2 51 28 ·78 | 0 ·50 | 0 ·12 | 8 5 13 ·1 | 3 ·1 | 1 ·8 | 0 ·4 |
| 2 51 40 ·91 | 0 ·51 | 0 ·12 | 8 3 58 ·1 | 3 ·1 | 1 ·8 | 0 ·4 |
| 2 51 53 ·09 | 0 ·51 | 0 ·12 | 8 2 42 ·7 | 3 ·1 | 1 ·8 | 0 ·4 |
| 2 52 5 ·32 | 0 ·51 | 0 ·12 | 8 1 27 ·1 | 3 ·2 | 1 ·8 | 0 ·4 |
| 2 52 17 ·61 | 0 ·51 | 0 ·12 | 8 0 11 ·2 | 3 ·2 | 1 ·8 | 0 ·4 |
| 2 52 29 ·95 | 0 ·52 | 0 ·12 | 7 58 55 ·0 | 3 ·2 | 1 ·8 | 0 ·4 |
| 2 52 42 ·34 | 0 ·52 | 0 ·12 | 7 57 38 ·4 | 3 ·2 | 1 ·8 | 0 ·4 |
| 2 52 54 ·77 | 0 ·52 | 0 ·12 | 7 56 21 ·6 | 3 ·2 | 1 ·8 | 0 ·4 |
| 2 53 7 ·24 | 0 ·52 | 0 ·12 | 7 55 4 ·5 | 3 ·2 | 1 ·8 | 0 ·4 |
| 2 53 19 ·75 | 0 ·52 | 0 ·12 | 7 53 47 ·3 | 3 ·2 | 1 ·8 | 0 ·4 |
| 2 53 32 ·30 | 0 ·52 | 0 ·12 | 7 52 29 ·8 | 3 ·2 | 1 ·8 | 0 ·4 |
| 2 53 44 ·88 | 0 ·53 | 0 ·12 | 7 51 12 ·1 | 3 ·2 | 1 ·8 | 0 ·4 |
| 2 53 57 ·50 | 0 ·53 | 0 ·12 | 7 49 54 ·1 | 3 ·3 | 1 ·8 | 0 ·4 |
| 2 54 10 ·15 | 0 ·53 | 0 ·12 | 7 48 36 ·0 | 3 ·3 | 1 ·8 | 0 ·4 |
| 2 54 22 ·83 | 0 ·53 | 0 ·12 | 7 47 17 ·7 | 3 ·3 | 1 ·8 | 0 ·4 |
| 2 54 35 ·54 | 0 ·53 | 0 ·12 | 7 45 59 ·3 | 3 ·3 | 1 ·8 | 0 ·4 |
| 2 54 48 ·27 | 0 ·53 | 0 ·12 | 7 44 40 ·8 | 3 ·3 | 1 ·8 | 0 ·4 |
| 2 55 1 ·00 | 0 ·53 | 0 ·12 | 7 43 22 ·2 | 3 ·3 | 1 ·8 | 0 ·4 |
| 2 55 13 ·75 | 0 ·53 | 0 ·12 | 7 42 3 ·6 | 3 ·3 | 1 ·8 | 0 ·4 |
| 2 55 26 ·51 | 0 ·53 | 0 ·12 | 7 40 44 ·9 | 3 ·3 | 1 ·8 | 0 ·4 |
| 2 55 39 ·27 | 0 ·53 | 0 ·12 | 7 39 26 ·2 | 3 ·3 | 1 ·8 | 0 ·4 |
| 2 55 52 ·05 | + 0 ·53 | 0 ·12 | S. 7 38 7 ·5 | + 3 ·3 | 1 ·8 | 0 ·4 |

# MARCH, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | L Rad |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 22 55 51·86 | S. 7 38 8·7 | 1·3237374 | 0 21·4 | 342 24 23·5 | S. 0 46 30·0 | 1·30 |
| 2 | 22 56 4·67 | 7 36 49·7 | ·3237527 | 0 17·7 | 342 25 2·0 | 0 46 30·0 | ·30 |
| 3 | 22 56 17·49 | 7 35 30·7 | ·3237622 | 0 14·0 | 342 25 40·5 | 0 46 30·0 | ·30 |
| 4 | 22 56 30·31 | 7 34 11·6 | ·3237660 | 0 10·2 | 342 26 19·0 | 0 46 30·0 | ·30 |
| 5 | 22 56 43·13 | 7 32 52·5 | ·3237642 | 0 6·5 | 342 26 57·6 | 0 46 30·0 | ·30 |
| 6 | 22 56 55·95 | 7 31 33·5 | ·3237566 | {0 2·8 / 23 59·1} | 342 27 36·2 | 0 46 30·0 | ·30 |
| 7 | 22 57 8·76 | 7 30 14·5 | ·3237433 | 23 55·4 | 342 28 14·8 | 0 46 30·0 | ·30 |
| 8 | 22 57 21·56 | 7 28 55·5 | ·3237242 | 23 51·7 | 342 28 53·4 | 0 46 30·0 | ·30 |
| 9 | 22 57 34·35 | 7 27 36·6 | ·3236993 | 23 48·0 | 342 29 32·1 | 0 46 30·0 | ·30 |
| 10 | 22 57 47·12 | 7 26 17·9 | ·3236687 | 23 44·2 | 342 30 10·7 | 0 46 30·0 | ·30 |
| 11 | 22 57 59·88 | 7 24 59·3 | ·3236322 | 23 40·5 | 342 30 49·3 | 0 46 30·0 | ·30 |
| 12 | 22 58 12·62 | 7 23 40·9 | ·3235900 | 23 36·8 | 342 31 27·9 | 0 46 30·0 | ·30 |
| 13 | 22 58 25·34 | 7 22 22·7 | ·3235421 | 23 33·0 | 342 32 6·5 | 0 46 30·0 | ·30 |
| 14 | 22 58 38·02 | 7 21 4·6 | ·3234885 | 23 29·3 | 342 32 45·0 | 0 46 30·0 | ·30 |
| 15 | 22 58 50·67 | 7 19 46·7 | ·3234292 | 23 25·6 | 342 33 23·5 | 0 46 30·1 | ·30 |
| 16 | 22 59 3·29 | 7 18 29·1 | ·3233643 | 23 21·9 | 342 34 2·0 | 0 46 30·1 | ·30 |
| 17 | 22 59 15·88 | 7 17 11·6 | ·3232937 | 23 18·2 | 342 34 40·5 | 0 46 30·1 | ·30 |
| 18 | 22 59 28·43 | 7 15 54·4 | ·3232175 | 23 14·5 | 342 35 19·0 | 0 46 30·1 | ·30 |
| 19 | 22 59 40·94 | 7 14 37·4 | ·3231356 | 23 10·7 | 342 35 57·5 | 0 46 30·1 | ·30 |
| 20 | 22 59 53·41 | 7 13 20·6 | ·3230481 | 23 7·0 | 342 36 36·1 | 0 46 30·1 | ·30 |
| 21 | 23 0 5·84 | 7 12 4·1 | ·3229551 | 23 3·2 | 342 37 14·8 | 0 46 30·1 | ·30 |
| 22 | 23 0 18·22 | 7 10 48·0 | ·3228566 | 22 59·5 | 342 37 53·4 | 0 46 30·1 | ·30 |
| 23 | 23 0 30·55 | 7 9 32·2 | ·3227526 | 22 55·8 | 342 38 32·1 | 0 46 30·1 | ·30 |
| 24 | 23 0 42·83 | 7 8 16·7 | ·3226432 | 22 52·0 | 342 39 10·7 | 0 46 30·1 | ·30 |
| 25 | 23 0 55·06 | 7 7 1·6 | ·3225284 | 22 48·3 | 342 39 49·3 | 0 46 30·1 | ·30 |
| 26 | 23 1 7·22 | 7 5 46·9 | ·3224082 | 22 44·6 | 342 40 27·9 | 0 46 30·1 | ·30 |
| 27 | 23 1 19·32 | 7 4 32·6 | ·3222826 | 22 40·8 | 342 41 6·4 | 0 46 30·1 | ·30 |
| 28 | 23 1 31·36 | 7 3 18·6 | ·3221517 | 22 37·1 | 342 41 44·9 | 0 46 30·1 | ·30 |
| 29 | 23 1 43·33 | 7 2 5·1 | ·3220156 | 22 33·4 | 342 42 23·4 | 0 46 30·1 | ·30 |
| 30 | 23 1 55·24 | 7 0 52·0 | ·3218742 | 22 29·6 | 342 43 1·8 | 0 46 30·1 | ·30 |
| 31 | 23 2 7·08 | 6 59 39·3 | ·3217276 | 22 25·9 | 342 43 40·3 | 0 46 30·1 | ·30 |
| | 23 2 18·85 | S. 6 58 27·1 | 1·3215759 | 22 22·2 | 342 44 18·9 | S. 0 46 30·1 | 1·30 |

# MARCH, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 22 55 52 ·05 | + 0 ·53 | 0 ·12 | S. 7 38 7 ·5 | + 3 ·3 | 1 ·8 | 0 ·4 |
| 22 56 4 ·83 | 0 ·53 | 0 ·12 | 7 36 48 ·7 | 3 ·3 | 1 ·8 | 0 ·4 |
| 22 56 17 ·61 | 0 ·53 | 0 ·12 | 7 35 29 ·9 | 3 ·3 | 1 ·8 | 0 ·4 |
| 22 56 30 ·40 | 0 ·53 | 0 ·12 | 7 34 11 ·0 | 3 ·3 | 1 ·8 | 0 ·4 |
| 22 56 43 ·19 | 0 ·53 | 0 ·12 | 7 32 52 ·1 | 3 ·3 | 1 ·8 | 0 ·4 |
| {22 56 55 ·95 / 22 57 8 ·76} | {0 ·53 / 0 ·53} | {0 ·12 / 0 ·12} | {7 31 33 ·3 / 7 30 14 ·5} | {3 ·3 / 3 ·3} | {1·8 / 1·8} | {0 ·4 / 0 ·4} |
| 22 57 21 ·52 | 0 ·53 | 0 ·12 | 7 28 55 ·8 | 3 ·3 | 1 ·8 | 0 ·4 |
| 22 57 34 ·27 | 0 ·53 | 0 ·12 | 7 27 37 ·1 | 3 ·3 | 1 ·8 | 0 ·4 |
| 22 57 47 ·02 | 0 ·53 | 0 ·12 | 7 26 18 ·6 | 3 ·3 | 1 ·8 | 0 ·4 |
| 22 57 59 ·74 | 0 ·53 | 0 ·12 | 7 25 0 ·2 | 3 ·3 | 1 ·8 | 0 ·4 |
| 22 58 12 ·44 | 0 ·53 | 0 ·12 | 7 23 42 ·0 | 3 ·3 | 1 ·8 | 0 ·4 |
| 22 58 25 ·13 | 0 ·53 | 0 ·12 | 7 22 23 ·9 | 3 ·2 | 1 ·8 | 0 ·4 |
| 22 58 37 ·79 | 0 ·53 | 0 ·12 | 7 21 6 ·1 | 3 ·2 | 1 ·8 | 0 ·4 |
| 22 58 50 ·41 | 0 ·53 | 0 ·12 | 7 19 48 ·4 | 3 ·2 | 1 ·8 | 0 ·4 |
| 22 59 2 ·99 | 0 ·52 | 0 ·12 | 7 18 30 ·9 | 3 ·2 | 1 ·8 | 0 ·4 |
| 22 59 15 ·55 | 0 ·52 | 0 ·12 | 7 17 13 ·6 | 3 ·2 | 1 ·8 | 0 ·4 |
| 22 59 28 ·07 | 0 ·52 | 0 ·12 | 7 15 56 ·6 | 3 ·2 | 1 ·8 | 0 ·4 |
| 22 59 40 ·54 | 0 ·52 | 0 ·12 | 7 14 39 ·8 | 3 ·2 | 1 ·8 | 0 ·4 |
| 22 59 52 ·98 | 0 ·52 | 0 ·12 | 7 13 23 ·2 | 3 ·2 | 1 ·8 | 0 ·4 |
| 23 0 5 ·37 | 0 ·52 | 0 ·12 | 7 12 6 ·9 | 3 ·2 | 1 ·8 | 0 ·4 |
| 23 0 17 ·73 | 0 ·51 | 0 ·12 | 7 10 50 ·9 | 3 ·2 | 1 ·8 | 0 ·4 |
| 23 0 30 ·03 | 0 ·51 | 0 ·12 | 7 9 35 ·3 | 3 ·1 | 1 ·8 | 0 ·4 |
| 23 0 42 ·27 | 0 ·51 | 0 ·12 | 7 8 20 ·0 | 3 ·1 | 1 ·8 | 0 ·4 |
| 23 0 54 ·47 | 0 ·51 | 0 ·12 | 7 7 5 ·1 | 3 ·1 | 1 ·8 | 0 ·4 |
| 23 1 6 ·61 | 0 ·50 | 0 ·12 | 7 5 50 ·6 | 3 ·1 | 1 ·8 | 0 ·4 |
| 23 1 18 ·68 | 0 ·50 | 0 ·12 | 7 4 36 ·5 | 3 ·1 | 1 ·8 | 0 ·4 |
| 23 1 30 ·69 | 0 ·50 | 0 ·12 | 7 3 22 ·7 | 3 ·1 | 1 ·8 | 0 ·4 |
| 23 1 42 ·64 | 0 ·50 | 0 ·12 | 7 2 9 ·3 | 3 ·0 | 1 ·8 | 0 ·4 |
| 23 1 54 ·52 | 0 ·49 | 0 ·12 | 7 0 56 ·4 | 3 ·0 | 1 ·8 | 0 ·4 |
| 23 2 6 ·33 | 0 ·49 | 0 ·12 | 6 59 43 ·9 | 3 ·0 | 1 ·8 | 0 ·4 |
| 23 2 18 ·08 | 0 ·49 | 0 ·12 | 6 58 31 ·8 | 3 ·0 | 1 ·8 | 0 ·4 |
| 23 2 29 ·75 | + 0 ·49 | 0 ·12 | S. 6 57 20 ·2 | + 3 ·0 | 1 ·8 | 0 ·4 |

# APRIL, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | L Ra |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 23 2 18·85 | S.6 58 27·1 | 1·3215759 | 22 22·2 | 342 44 18·9 | S.0 46 30·1 | 1·3 |
| 2 | 23 2 30·55 | 6 57 15·3 | ·3214190 | 22 18·4 | 342 44 57·4 | 0 46 30·1 | ·3 |
| 3 | 23 2 42·18 | 6 56 4·0 | ·3212570 | 22 14·7 | 342 45 36·0 | 0 46 30·1 | ·3 |
| 4 | 23 2 53·73 | 6 54 53·2 | ·3210899 | 22 11·0 | 342 46 14·6 | 0 46 30·1 | ·3 |
| 5 | 23 3 5·20 | 6 53 42·9 | ·3209178 | 22 7·2 | 342 46 53·3 | 0 46 30·1 | ·3 |
| 6 | 23 3 16·59 | 6 52 33·1 | ·3207406 | 22 3·5 | 342 47 31·9 | 0 46 30·2 | ·3 |
| 7 | 23 3 27·90 | 6 51 23·9 | ·3205585 | 21 59·8 | 342 48 10·6 | 0 46 30·2 | ·3 |
| 8 | 23 3 39·12 | 6 50 15·2 | ·3203715 | 21 56·0 | 342 48 49·2 | 0 46 30·2 | ·3 |
| 9 | 23 3 50·25 | 6 49 7·1 | ·3201795 | 21 52·2 | 342 49 27·8 | 0 46 30·2 | ·3 |
| 10 | 23 4 1·28 | 6 47 59·6 | ·3199826 | 21 48·5 | 342 50 6·4 | 0 46 30·2 | ·3 |
| 11 | 23 4 12·22 | 6 46 52·7 | ·3197809 | 21 44·7 | 342 50 44·9 | 0 46 30·2 | ·3 |
| 12 | 23 4 23·06 | 6 45 46·3 | ·3195745 | 21 41·0 | 342 51 23·3 | 0 46 30·2 | ·3 |
| 13 | 23 4 33·80 | 6 44 40·6 | ·3193634 | 21 37·2 | 342 52 1·8 | 0 46 30·2 | ·3 |
| 14 | 23 4 44·44 | 6 43 35·6 | ·3191476 | 21 33·5 | 342 52 40·3 | 0 46 30·2 | ·3 |
| 15 | 23 4 54·98 | 6 42 31·2 | ·3189272 | 21 29·7 | 342 53 18·8 | 0 46 30·2 | ·3 |
| 16 | 23 5 5·42 | 6 41 27·5 | ·3187023 | 21 25·9 | 342 53 57·4 | 0 46 30·2 | ·3 |
| 17 | 23 5 15·75 | 6 40 24·5 | ·3184729 | 21 22·2 | 342 54 36·1 | 0 46 30·2 | ·3 |
| 18 | 23 5 25·98 | 6 39 22·1 | ·3182391 | 21 18·4 | 342 55 14·8 | 0 46 30·2 | ·3 |
| 19 | 23 5 36·10 | 6 38 20·4 | ·3180010 | 21 14·6 | 342 55 53·5 | 0 46 30·2 | ·3 |
| 20 | 23 5 46·10 | 6 37 19·5 | ·3177587 | 21 10·9 | 342 56 32·1 | 0 46 30·2 | ·3 |
| 21 | 23 5 55·99 | 6 36 19·4 | ·3175121 | 21 7·1 | 342 57 10·7 | 0 46 30·2 | ·3 |
| 22 | 23 6 5·75 | 6 35 20·0 | ·3172613 | 21 3·3 | 342 57 49·3 | 0 46 30·2 | ·3 |
| 23 | 23 6 15·38 | 6 34 21·4 | ·3170065 | 20 59·5 | 342 58 27·9 | 0 46 30·2 | ·3 |
| 24 | 23 6 24·89 | 6 33 23·6 | ·3167476 | 20 55·8 | 342 59 6·4 | 0 46 30·2 | ·3 |
| 25 | 23 6 34·28 | 6 32 26·6 | ·3164847 | 20 52·0 | 342 59 44·9 | 0 46 30·2 | ·3 |
| 26 | 23 6 43·54 | 6 31 30·4 | ·3162179 | 20 48·2 | 343 0 23·4 | 0 46 30·2 | ·3 |
| 27 | 23 6 52·68 | 6 30 34·9 | ·3159473 | 20 44·5 | 343 1 1·9 | 0 46 30·2 | ·3 |
| 28 | 23 7 1·69 | 6 29 40·3 | ·3156729 | 20 40·7 | 343 1 40·5 | 0 46 30·2 | ·3 |
| 29 | 23 7 10·58 | 6 28 46·5 | ·3153949 | 20 36·9 | 343 2 19·1 | 0 46 30·2 | ·3 |
| 30 | 23 7 19·34 | 6 27 53·5 | ·3151132 | 20 33·1 | 343 2 57·7 | 0 46 30·2 | ·3 |
| 31 | 23 7 27·97 | S.6 27 1·3 | 1·3148279 | 20 29·3 | 343 3 36·3 | S.0 46 30·2 | 1·3 |

# JUNE, 1839.

At Transit over the Meridian of Greenwich.

| Apparent Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | Apparent Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 10 43 ·36 | + 0 ·15 | 0 ·13 | S.6 7 45 ·4 | + 0 ·8 | 1 ·9 | 0 ·4 |
| 10 46 ·79 | 0 ·14 | 0 ·13 | 6 7 26 ·3 | 0 ·8 | 1 ·9 | 0 ·4 |
| 10 50 ·05 | 0 ·13 | 0 ·13 | 6 7 8 ·3 | 0 ·7 | 1 ·9 | 0 ·4 |
| 10 53 ·13 | 0 ·12 | 0 ·13 | 6 6 51 ·3 | 0 ·7 | 1 ·9 | 0 ·4 |
| 10 56 ·04 | 0 ·12 | 0 ·13 | 6 6 35 ·4 | 0 ·6 | 1 ·9 | 0 ·4 |
| 10 58 ·77 | 0 ·11 | 0 ·13 | 6 6 20 ·7 | 0 ·6 | 1 ·9 | 0 ·4 |
| 11 1 ·33 | 0 ·10 | 0 ·13 | 6 6 7 ·0 | 0 ·5 | 1 ·9 | 0 ·4 |
| 11 3 ·71 | 0 ·10 | 0 ·13 | 6 5 54 ·5 | 0 ·5 | 1 ·9 | 0 ·4 |
| 11 5 ·91 | 0 ·09 | 0 ·13 | 6 5 43 ·1 | 0 ·5 | 1 ·9 | 0 ·4 |
| 11 7 ·94 | 0 ·08 | 0 ·13 | 6 5 32 ·9 | 0 ·4 | 1 ·9 | 0 ·4 |
| 11 9 ·79 | 0 ·07 | 0 ·13 | 6 5 23 ·8 | 0 ·4 | 1 ·9 | 0 ·4 |
| 11 11 ·46 | 0 ·07 | 0 ·13 | 6 5 15 ·9 | 0 ·3 | 1 ·9 | 0 ·4 |
| 11 12 ·95 | 0 ·06 | 0 ·13 | 6 5 9 ·1 | 0 ·3 | 1 ·9 | 0 ·4 |
| 11 14 ·26 | 0 ·05 | 0 ·13 | 6 5 3 ·3 | 0 ·2 | 1 ·9 | 0 ·4 |
| 11 15 ·38 | 0 ·04 | 0 ·13 | 6 4 58 ·7 | 0 ·2 | 1 ·9 | 0 ·4 |
| 11 16 ·33 | 0 ·04 | 0 ·13 | 6 4 55 ·3 | 0 ·1 | 1 ·9 | 0 ·4 |
| 11 17 ·09 | 0 ·03 | 0 ·13 | 6 4 53 ·0 | + 0 ·1 | 1 ·9 | 0 ·4 |
| 11 17 ·68 | 0 ·02 | 0 ·13 | 6 4 51 ·8 | 0 ·0 | 1 ·9 | 0 ·4 |
| 11 18 ·09 | 0 ·01 | 0 ·13 | 6 4 51 ·8 | 0 ·0 | 1 ·9 | 0 ·4 |
| 11 18 ·31 | + 0 ·01 | 0 ·13 | 6 4 53 ·0 | — 0 ·1 | 1 ·9 | 0 ·4 |
| 11 18 ·36 | 0 ·00 | 0 ·13 | 6 4 55 ·2 | 0 ·1 | 1 ·9 | 0 ·4 |
| 11 18 ·23 | — 0 ·01 | 0 ·13 | 6 4 58 ·5 | 0 ·2 | 1 ·9 | 0 ·4 |
| 11 17 ·93 | 0 ·02 | 0 ·13 | 6 5 2 ·9 | 0 ·2 | 1 ·9 | 0 ·4 |
| 11 17 ·46 | 0 ·02 | 0 ·13 | 6 5 8 ·4 | 0 ·3 | 1 ·9 | 0 ·4 |
| 11 16 ·80 | 0 ·03 | 0 ·13 | 6 5 15 ·0 | 0 ·3 | 1 ·9 | 0 ·4 |
| 11 15 ·97 | 0 ·04 | 0 ·13 | 6 5 22 ·7 | 0 ·3 | 1 ·9 | 0 ·4 |
| 11 14 ·97 | 0 ·05 | 0 ·13 | 6 5 31 ·5 | 0 ·4 | 1 ·9 | 0 ·4 |
| 11 13 ·80 | 0 ·05 | 0 ·13 | 6 5 41 ·4 | 0 ·4 | 1 ·9 | 0 ·4 |
| 11 12 ·45 | 0 ·06 | 0 ·13 | 6 5 52 ·3 | 0 ·5 | 1 ·9 | 0 ·4 |
| 11 10 ·92 | 0 ·07 | 0 ·13 | 6 6 4 ·3 | 0 ·5 | 1 ·9 | 0 ·4 |
| 11 9 ·22 | — 0 ·07 | 0 ·13 | S.6 6 17 ·4 | — 0 ·6 | 1 ·9 | 0 ·4 |

# MAY, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | |
|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ |
| 1 | 23 7 27·97 | S. 6 27 1·3 | 1·3148279 | 20 29·3 | 343 3 36·3 | S. 0 46 30·2 |
| 2 | 23 7 36·46 | 6 26 10·0 | ·3145391 | 20 25·5 | 343 4 15·0 | 0 46 30·2 |
| 3 | 23 7 44·82 | 6 25 19·6 | ·3142469 | 20 21·7 | 343 4 53·7 | 0 46 30·2 |
| 4 | 23 7 53·04 | 6 24 30·1 | ·3139512 | 20 17·9 | 343 5 32·4 | 0 46 30·2 |
| 5 | 23 8 1·12 | 6 23 41·5 | ·3136522 | 20 14·1 | 343 6 11·1 | 0 46 30·2 |
| 6 | 23 8 9·05 | 6 22 53·7 | ·3133499 | 20 10·3 | 343 6 49·7 | 0 46 30·2 |
| 7 | 23 8 16·84 | 6 22 6·8 | ·3130444 | 20 6·5 | 343 7 28·3 | 0 46 30·2 |
| 8 | 23 8 24·48 | 6 21 20·9 | ·3127359 | 20 2·7 | 343 8 6·8 | 0 46 30·2 |
| 9 | 23 8 31·97 | 6 20 36·0 | ·3124243 | 19 58·9 | 343 8 45·3 | 0 46 30·2 |
| 10 | 23 8 39·31 | 6 19 52·0 | ·3121097 | 19 55·1 | 343 9 23·8 | 0 46 30·2 |
| 11 | 23 8 46·50 | 6 19 9·0 | ·3117922 | 19 51·3 | 343 10 2·4 | 0 46 30·2 |
| 12 | 23 8 53·54 | 6 18 27·0 | ·3114719 | 19 47·5 | 343 10 40·9 | 0 46 30·2 |
| 13 | 23 9 0·43 | 6 17 45·9 | ·3111489 | 19 43·7 | 343 11 19·5 | 0 46 30·2 |
| 14 | 23 9 7·17 | 6 17 5·8 | ·3108234 | 19 39·9 | 343 11 58·2 | 0 46 30·2 |
| 15 | 23 9 13·76 | 6 16 26·6 | ·3104952 | 19 36·0 | 343 12 36·9 | 0 46 30·2 |
| 16 | 23 9 20·19 | 6 15 48·4 | ·3101645 | 19 32·2 | 343 13 15·5 | 0 46 30·2 |
| 17 | 23 9 26·46 | 6 15 11·3 | ·3098315 | 19 28·3 | 343 13 54·2 | 0 46 30·2 |
| 18 | 23 9 32·56 | 6 14 35·2 | ·3094962 | 19 24·5 | 343 14 33·0 | 0 46 30·2 |
| 19 | 23 9 38·50 | 6 14 0·2 | ·3091588 | 19 20·7 | 343 15 11·7 | 0 46 30·2 |
| 20 | 23 9 44·27 | 6 13 26·3 | ·3088193 | 19 16·8 | 343 15 50·3 | 0 46 30·2 |
| 21 | 23 9 49·88 | 6 12 53·5 | ·3084778 | 19 13·0 | 343 16 28·8 | 0 46 30·2 |
| 22 | 23 9 55·32 | 6 12 21·6 | ·3081344 | 19 9·2 | 343 17 7·4 | 0 46 30·2 |
| 23 | 23 10 0·60 | 6 11 50·7 | ·3077892 | 19 5·3 | 343 17 45·9 | 0 46 30·2 |
| 24 | 23 10 5·71 | 6 11 20·9 | ·3074423 | 19 1·4 | 343 18 24·4 | 0 46 30·2 |
| 25 | 23 10 10·66 | 6 10 52·2 | ·3070937 | 18 57·6 | 343 19 3·0 | 0 46 30·2 |
| 26 | 23 10 15·44 | 6 10 24·5 | ·3067435 | 18 53·7 | 343 19 41·6 | 0 46 30·2 |
| 27 | 23 10 20·05 | 6 9 57·9 | ·3063919 | 18 49·9 | 343 20 20·2 | 0 46 30·2 |
| 28 | 23 10 24·50 | 6 9 32·3 | ·3060389 | 18 46·0 | 343 20 58·9 | 0 46 30·2 |
| 29 | 23 10 28·78 | 6 9 7·8 | ·3056846 | 18 42·2 | 343 21 37·7 | 0 46 30·2 |
| 30 | 23 10 32·88 | 6 8 44·4 | ·3053290 | 18 38·3 | 343 22 16·4 | 0 46 30·2 |
| 31 | 23 10 36·82 | 6 8 22·1 | ·3049723 | 18 34·4 | 343 22 55·1 | 0 46 30·2 |
| 32 | 23 10 40·58 | S. 6 8 0·9 | 1·3046146 | 18 30·5 | 343 23 33·8 | S. 0 46 30·2 |

# LY, 1839.

it over the Meridian of Greenwich.

| on Asc. Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|
| s | s | ° ′ ″ | ″ | ″ | ″ |
| —0·07 | 0·13 | S. 6 6 17·4 | —0·6 | 1·9 | 0·4 |
| 0·08 | 0·13 | 6 6 31·7 | 0·6 | 1·9 | 0·4 |
| 0·09 | 0·13 | 6 6 47·0 | 0·7 | 1·9 | 0·4 |
| 06 | 0·10 | 6 7 3·4 | 0·7 | 1·9 | 0·4 |
| ·66 | 0·10 | 6 7 20·9 | 0·7 | 1·9 | 0·4 |
| 8·10 | 0·11 | 6 7 39·3 | 0·8 | 1·9 | 0·4 |
| 55·37 | 0·12 | 6 7 58·8 | 0·8 | 1·9 | 0·4 |
| 10 52·48 | 0·12 | 6 8 19·3 | 0·9 | 1·9 | 0·4 |
| 10 49·43 | 0·13 | 6 8 40·8 | 0·9 | 1·9 | 0·4 |
| 10 46·20 | 0·14 | 6 9 3·4 | 1·0 | 1·9 | 0·4 |
| 10 42·81 | 0·14 | 6 9 27·1 | 1·0 | 1·9 | 0·4 |
| 10 39·25 | 0·15 | 6 9 51·7 | 1·0 | 1·9 | 0·4 |
| 10 35·53 | 0·16 | 6 10 17·3 | 1·1 | 1·9 | 0·4 |
| 10 31·65 | 0·16 | 6 10 44·0 | 1·1 | 1·9 | 0·4 |
| 10 27·61 | 0·17 | 6 11 11·6 | 1·2 | 1·9 | 0·4 |
| 10 23·41 | 0·18 | 6 11 40·1 | 1·2 | 1·9 | 0·4 |
| 10 19·06 | 0·18 | 6 12 9·6 | 1·2 | 1·9 | 0·4 |
| 10 14·56 | 0·19 | 6 12 40·0 | 1·3 | 1·9 | 0·4 |
| 10 9·90 | 0·20 | 6 13 11·4 | 1·3 | 1·9 | 0·4 |
| 10 5·10 | 0·20 | 6 13 43·7 | 1·4 | 1·9 | 0·4 |
| 10 0·15 | 0·21 | 6 14 16·9 | 1·4 | 1·9 | 0·4 |
| 9 55·07 | 0·21 | 6 14 50·9 | 1·4 | 1·9 | 0·4 |
| 9 49·84 | 0·22 | 6 15 25·7 | 1·5 | 1·9 | 0·4 |
| 9 44·48 | 0·23 | 6 16 1·4 | 1·5 | 1·9 | 0·4 |
| 9 38·97 | 0·23 | 6 16 37·9 | 1·5 | 1·9 | 0·4 |
| 9 33·32 | 0·24 | 6 17 15·2 | 1·6 | 1·9 | 0·4 |
| 9 27·54 | 0·24 | 6 17 53·3 | 1·6 | 1·9 | 0·4 |
| 9 21·62 | 0·25 | 6 18 32·2 | 1·6 | 1·9 | 0·4 |
| 9 15·57 | 0·25 | 6 19 12·0 | 1·7 | 1·9 | 0·4 |
| 9 9·39 | 0·26 | 6 19 52·6 | 1·7 | 1·9 | 0·4 |
| 9 3·07 | 0·27 | 6 20 34·0 | 1·7 | 1·9 | 0·4 |
| 8 56·63 | —0·27 | S. 6 21 16·1 | —1·8 | 1·9 | 0·4 |

# JUNE, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | R |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 23 10 40·58 | S. 6 8 0·9 | 1·3046146 | 18 30·5 | 343 23 33·8 | S. 0 46 30·2 | 1· |
| 2 | 23 10 44·16 | 6 7 40·9 | ·3042559 | 18 26·7 | 343 24 12·4 | 0 46 30·2 | · |
| 3 | 23 10 47·56 | 6 7 22·0 | ·3038964 | 18 22·8 | 343 24 51·1 | 0 46 30·2 | · |
| 4 | 23 10 50·79 | 6 7 4·2 | ·3035362 | 18 18·9 | 343 25 29·7 | 0 46 30·2 | · |
| 5 | 23 10 53·84 | 6 6 47·4 | ·3031754 | 18 15·0 | 343 26 8·2 | 0 46 30·2 | · |
| 6 | 23 10 56·71 | 6 6 31·8 | ·3028139 | 18 11·1 | 343 26 46·8 | 0 46 30·1 | · |
| 7 | 23 10 59·41 | 6 6 17·3 | ·3024519 | 18 7·2 | 343 27 25·3 | 0 46 30·1 | · |
| 8 | 23 11 1·93 | 6 6 3·9 | ·3020895 | 18 3·4 | 343 28 3·9 | 0 46 30·1 | · |
| 9 | 23 11 4·27 | 6 5 51·6 | ·3017269 | 17 59·5 | 343 28 42·5 | 0 46 30·1 | · |
| 10 | 23 11 6·43 | 6 5 40·5 | ·3013642 | 17 55·6 | 343 29 21·2 | 0 46 30·1 | · |
| 11 | 23 11 8·42 | 6 5 30·5 | ·3010013 | 17 51·7 | 343 29 59·9 | 0 46 30·1 | · |
| 12 | 23 11 10·23 | 6 5 21·7 | ·3006385 | 17 47·8 | 343 30 38·7 | 0 46 30·1 | · |
| 13 | 23 11 11·86 | 6 5 14·0 | ·3002759 | 17 43·9 | 343 31 17·4 | 0 46 30·1 | · |
| 14 | 23 11 13·31 | 6 5 7·4 | ·2999136 | 17 39·9 | 343 31 56·1 | 0 46 30·1 | · |
| 15 | 23 11 14·57 | 6 5 2·0 | ·2995517 | 17 36·0 | 343 32 34·8 | 0 46 30·1 | · |
| 16 | 23 11 15·65 | 6 4 57·7 | ·2991904 | 17 32·1 | 343 33 13·4 | 0 46 30·1 | · |
| 17 | 23 11 16·55 | 6 4 54·6 | ·2988296 | 17 28·2 | 343 33 52·0 | 0 46 30·1 | · |
| 18 | 23 11 17·27 | 6 4 52·6 | ·2984694 | 17 24·3 | 343 34 30·6 | 0 46 30·1 | · |
| 19 | 23 11 17·81 | 6 4 51·8 | ·2981101 | 17 20·4 | 343 35 9·1 | 0 46 30·1 | · |
| 20 | 23 11 18·16 | 6 4 52·1 | ·2977517 | 17 16·4 | 343 35 47·7 | 0 46 30·1 | · |
| 21 | 23 11 18·34 | 6 4 53·5 | ·2973944 | 17 12·5 | 343 36 26·3 | 0 46 30·1 | · |
| 22 | 23 11 18·34 | 6 4 56·0 | ·2970383 | 17 8·5 | 343 37 4·9 | 0 46 30·1 | · |
| 23 | 23 11 18·16 | 6 4 59·6 | ·2966833 | 17 4·6 | 343 37 43·5 | 0 46 30·1 | · |
| 24 | 23 11 17·81 | 6 5 4·3 | ·2963296 | 17 0·7 | 343 38 22·2 | 0 46 30·1 | · |
| 25 | 23 11 17·28 | 6 5 10·1 | ·2959773 | 16 56·7 | 343 39 0·9 | 0 46 30·1 | · |
| 26 | 23 11 16·57 | 6 5 17·1 | ·2956265 | 16 52·8 | 343 39 39·7 | 0 46 30·1 | · |
| 27 | 23 11 15·69 | 6 5 25·2 | ·2952774 | 16 48·9 | 343 40 18·4 | 0 46 30·1 | · |
| 28 | 23 11 14·64 | 6 5 34·3 | ·2949301 | 16 44·9 | 343 40 57·1 | 0 46 30·1 | · |
| 29 | 23 11 13·41 | 6 5 44·5 | ·2945845 | 16 40·9 | 343 41 35·8 | 0 46 30·1 | · |
| 30 | 23 11 12·00 | 6 5 55·8 | ·2942407 | 16 36·9 | 343 42 14·4 | 0 46 30·1 | · |
| 31 | 23 11 10·41 | S. 6 6 8·2 | 1·2938990 | 16 32·9 | 343 42 53·1 | S. 0 46 30·1 | 1· |

# JULY, 1839.

At Transit over the Meridian of Greenwich.

| | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|---|
| | h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| | 23 11 9·22 | — 0·07 | 0·13 | S. 6 6 17·4 | — 0·6 | 1·9 | 0·4 |
| | 23 11 7·34 | 0·08 | 0·13 | 6 6 31·7 | 0·6 | 1·9 | 0·4 |
| | 23 11 5·29 | 0·09 | 0·13 | 6 6 47·0 | 0·7 | 1·9 | 0·4 |
| | 23 11 3·06 | 0·10 | 0·13 | 6 7 3·4 | 0·7 | 1·9 | 0·4 |
| | 23 11 0·66 | 0·10 | 0·13 | 6 7 20·9 | 0·7 | 1·9 | 0·4 |
| | 23 10 58·10 | 0·11 | 0·13 | 6 7 39·3 | 0·8 | 1·9 | 0·4 |
| | 23 10 55·37 | 0·12 | 0·13 | 6 7 58·8 | 0·8 | 1·9 | 0·4 |
| | 23 10 52·48 | 0·12 | 0·13 | 6 8 19·3 | 0·9 | 1·9 | 0·4 |
| | 23 10 49·43 | 0·13 | 0·13 | 6 8 40·8 | 0·9 | 1·9 | 0·4 |
| | 23 10 46·20 | 0·14 | 0·13 | 6 9 3·4 | 1·0 | 1·9 | 0·4 |
| | 23 10 42·81 | 0·14 | 0·13 | 6 9 27·1 | 1·0 | 1·9 | 0·4 |
| | 23 10 39·25 | 0·15 | 0·13 | 6 9 51·7 | 1·0 | 1·9 | 0·4 |
| | 23 10 35·53 | 0·16 | 0·13 | 6 10 17·3 | 1·1 | 1·9 | 0·4 |
| | 23 10 31·65 | 0·16 | 0·13 | 6 10 44·0 | 1·1 | 1·9 | 0·4 |
| | 23 10 27·61 | 0·17 | 0·13 | 6 11 11·6 | 1·2 | 1·9 | 0·4 |
| 6 | 23 10 23·41 | 0·18 | 0·13 | 6 11 40·1 | 1·2 | 1·9 | 0·4 |
| 7 | 23 10 19·06 | 0·18 | 0·13 | 6 12 9·6 | 1·2 | 1·9 | 0·4 |
| 8 | 23 10 14·56 | 0·19 | 0·13 | 6 12 40·0 | 1·3 | 1·9 | 0·4 |
| 9 | 23 10 9·90 | 0·20 | 0·13 | 6 13 11·4 | 1·3 | 1·9 | 0·4 |
| 0 | 23 10 5·10 | 0·20 | 0·13 | 6 13 43·7 | 1·4 | 1·9 | 0·4 |
| 1 | 23 10 0·15 | 0·21 | 0·13 | 6 14 16·9 | 1·4 | 1·9 | 0·4 |
| 2 | 23 9 55·07 | 0·21 | 0·13 | 6 14 50·9 | 1·4 | 1·9 | 0·4 |
| 3 | 23 9 49·84 | 0·22 | 0·13 | 6 15 25·7 | 1·5 | 1·9 | 0·4 |
| 4 | 23 9 44·48 | 0·23 | 0·13 | 6 16 1·4 | 1·5 | 1·9 | 0·4 |
| 5 | 23 9 38·97 | 0·23 | 0·13 | 6 16 37·9 | 1·5 | 1·9 | 0·4 |
| 6 | 23 9 33·32 | 0·24 | 0·13 | 6 17 15·2 | 1·6 | 1·9 | 0·4 |
| 7 | 23 9 27·54 | 0·24 | 0·13 | 6 17 53·3 | 1·6 | 1·9 | 0·4 |
| 8 | 23 9 21·62 | 0·25 | 0·13 | 6 18 32·2 | 1·6 | 1·9 | 0·4 |
| 9 | 23 9 15·57 | 0·25 | 0·13 | 6 19 12·0 | 1·7 | 1·9 | 0·4 |
| 0 | 23 9 9·39 | 0·26 | 0·13 | 6 19 52·6 | 1·7 | 1·9 | 0·4 |
| 1 | 23 9 3·07 | 0·27 | 0·13 | 6 20 34·0 | 1·7 | 1·9 | 0·4 |
| 2 | 23 8 56·63 | —0·27 | 0·13 | S. 6 21 16·1 | — 1·8 | 1·9 | 0·4 |

# AUGUST, 1839.

At Transit over the Meridian of Greenwich.

| | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| | s | s | ° ′ ″ | ″ | ″ | ″ |
| ·63 | — 0 ·27 | 0 ·13 | S. 6 21 16 ·1 | — 1 ·8 | 1 ·9 | 0 ·5 |
| ·08 | 0 ·28 | 0 ·13 | 6 21 58 ·9 | 1 ·8 | 1 ·9 | 0 ·5 |
| ·41 | 0 ·28 | 0 ·13 | 6 22 42 ·3 | 1 ·8 | 1 ·9 | 0 ·5 |
| ·62 | 0 ·28 | 0 ·13 | 6 23 26 ·4 | 1 ·9 | 1 ·9 | 0 ·5 |
| ·73 | 0 ·29 | 0 ·13 | 6 24 11 ·1 | 1 ·9 | 1 ·9 | 0 ·5 |
| ·73 | 0 ·29 | 0 ·13 | 6 24 56 ·6 | 1 ·9 | 1 ·9 | 0 ·5 |
| ·61 | 0 ·30 | 0 ·13 | 6 25 42 ·7 | 1 ·9 | 1 ·9 | 0 ·5 |
| ·39 | 0 ·30 | 0 ·13 | 6 26 29 ·4 | 2 ·0 | 1 ·9 | 0 ·5 |
| ·06 | 0 ·31 | 0 ·13 | 6 27 16 ·8 | 2 ·0 | 1 ·9 | 0 ·5 |
| ·63 | 0 ·31 | 0 ·13 | 6 28 4 ·7 | 2 ·0 | 1 ·9 | 0 ·5 |
| ·09 | 0 ·32 | 0 ·13 | 6 28 53 ·3 | 2 ·0 | 1 ·9 | 0 ·5 |
| ·45 | 0 ·32 | 0 ·13 | 6 29 42 ·4 | 2 ·1 | 1 ·9 | 0 ·5 |
| ·73 | 0 ·32 | 0 ·13 | 6 30 32 ·0 | 2 ·1 | 1 ·9 | 0 ·5 |
| ·93 | 0 ·33 | 0 ·13 | 6 31 22 ·0 | 2 ·1 | 1 ·9 | 0 ·5 |
| ·04 | 0 ·33 | 0 ·13 | 6 32 12 ·4 | 2 ·1 | 2 ·0 | 0 ·5 |
| ·08 | 0 ·33 | 0 ·13 | 6 33 3 ·3 | 2 ·1 | 2 ·0 | 0 ·5 |
| ·04 | 0 ·34 | 0 ·13 | 6 33 54 ·7 | 2 ·2 | 2 ·0 | 0 ·5 |
| ·93 | 0 ·34 | 0 ·13 | 6 34 46 ·5 | 2 ·2 | 2 ·0 | 0 ·5 |
| ·75 | 0 ·34 | 0 ·13 | 6 35 38 ·6 | 2 ·2 | 2 ·0 | 0 ·5 |
| ·50 | 0 ·35 | 0 ·13 | 6 36 31 ·0 | 2 ·2 | 2 ·0 | 0 ·5 |
| ·18 | 0 ·35 | 0 ·13 | 6 37 23 ·9 | 2 ·2 | 2 ·0 | 0 ·5 |
| ·80 | 0 ·35 | 0 ·13 | 6 38 17 ·1 | 2 ·2 | 2 ·0 | 0 ·5 |
| ·36 | 0 ·35 | 0 ·13 | 6 39 10 ·6 | 2 ·2 | 2 ·0 | 0 ·5 |
| ·86 | 0 ·36 | 0 ·13 | 6 40 4 ·4 | 2 ·2 | 2 ·0 | 0 ·5 |
| ·31 | 0 ·36 | 0 ·13 | 6 40 58 ·5 | 2 ·3 | 2 ·0 | 0 ·5 |
| ·71 | 0 ·36 | 0 ·13 | 6 41 52 ·8 | 2 ·3 | 2 ·0 | 0 ·5 |
| ·08 | 0 ·36 | 0 ·13 | 6 42 47 ·3 | 2 ·3 | 2 ·0 | 0 ·5 |
| ·40 | 0 ·36 | 0 ·13 | 6 43 42 ·0 | 2 ·3 | 2 ·0 | 0 ·5 |
| ·68 | 0 ·36 | 0 ·13 | 6 44 36 ·9 | 2 ·3 | 2 ·0 | 0 ·5 |
| ·92 | 0 ·37 | 0 ·13 | 6 45 31 ·9 | 2 ·3 | 2 ·0 | 0 ·5 |
| ·13 | 0 ·37 | 0 ·13 | 6 46 27 ·1 | 2 ·3 | 2 ·0 | 0 ·5 |
| ·32 | — 0 ·37 | 0 ·13 | S. 6 47 22 ·4 | — 2 ·3 | 2 ·0 | 0 ·5 |

# AUGUST, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | L Ra |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 23 9 0·54 | S. 6 20 50·5 | 1·2848730 | 14 28·9 | 344 2 50·3 | S. 0 46 29·9 | 1·30 |
| 2 | 23 8 54·04 | 6 21 33·0 | ·2846491 | 14 24·9 | 344 3 28·9 | 0 46 29·9 | ·30 |
| 3 | 23 8 47·42 | 6 22 16·1 | ·2844304 | 14 20·8 | 344 4 7·6 | 0 46 29·9 | ·30 |
| 4 | 23 8 40·68 | 6 22 59·9 | ·2842171 | 14 16·8 | 344 4 46·2 | 0 46 29·9 | ·30 |
| 5 | 23 8 33·84 | 6 23 44·4 | ·2840094 | 14 12·8 | 344 5 24·9 | 0 46 29·9 | ·30 |
| 6 | 23 8 26·88 | 6 24 29·6 | ·2838073 | 14 8·7 | 344 6 3·6 | 0 46 29·9 | ·30 |
| 7 | 23 8 19·81 | 6 25 15·5 | ·2836108 | 14 4·7 | 344 6 42·3 | 0 46 29·9 | ·30 |
| 8 | 23 8 12·63 | 6 26 2·0 | ·2834197 | 14 0·6 | 344 7 21·0 | 0 46 29·9 | ·30 |
| 9 | 23 8 5·34 | 6 26 49·1 | ·2832342 | 13 56·6 | 344 7 59·6 | 0 46 29·9 | ·30 |
| 10 | 23 7 57·94 | 6 27 36·8 | ·2830544 | 13 52·5 | 344 8 38·2 | 0 46 29·9 | ·30 |
| 11 | 23 7 50·44 | 6 28 25·2 | ·2828804 | 13 48·5 | 344 9 16·7 | 0 46 29·9 | ·30 |
| 12 | 23 7 42·84 | 6 29 14·1 | ·2827123 | 13 44·4 | 344 9 55·2 | 0 46 29·8 | ·30 |
| 13 | 23 7 35·15 | 6 30 3·6 | ·2825502 | 13 40·3 | 344 10 33·7 | 0 46 29·8 | ·30 |
| 14 | 23 7 27·37 | 6 30 53·5 | ·2823942 | 13 36·2 | 344 11 12·3 | 0 46 29·8 | ·30 |
| 15 | 23 7 19·51 | 6 31 43·8 | ·2822443 | 13 32·2 | 344 11 50·9 | 0 46 29·8 | ·30 |
| 16 | 23 7 11·57 | 6 32 34·6 | ·2821005 | 13 28·1 | 344 12 29·4 | 0 46 29·8 | ·30 |
| 17 | 23 7 3·55 | 6 33 25·9 | ·2819628 | 13 24·0 | 344 13 8·0 | 0 46 29·8 | ·30 |
| 18 | 23 6 55·45 | 6 34 17·6 | ·2818314 | 13 19·9 | 344 13 46·6 | 0 46 29·8 | ·30 |
| 19 | 23 6 47·28 | 6 35 9·6 | ·2817063 | 13 15·9 | 344 14 25·3 | 0 46 29·8 | ·30 |
| 20 | 23 6 39·05 | 6 36 2·0 | ·2815875 | 13 11·8 | 344 15 3·9 | 0 46 29·8 | ·30 |
| 21 | 23 6 30·75 | 6 36 54·8 | ·2814751 | 13 7·8 | 344 15 42·6 | 0 46 29·8 | ·30 |
| 22 | 23 6 22·38 | 6 37 48·0 | ·2813691 | 13 3·7 | 344 16 21·3 | 0 46 29·8 | ·30 |
| 23 | 23 6 13·95 | 6 38 41·5 | ·2812694 | 12 59·6 | 344 16 59·9 | 0 46 29·7 | ·30 |
| 24 | 23 6 5·46 | 6 39 35·3 | ·2811762 | 12 55·6 | 344 17 38·5 | 0 46 29·7 | ·30 |
| 25 | 23 5 56·91 | 6 40 29·4 | ·2810895 | 12 51·5 | 344 18 17·0 | 0 46 29·7 | ·30 |
| 26 | 23 5 48·31 | 6 41 23·7 | ·2810094 | 12 47·4 | 344 18 55·5 | 0 46 29·7 | ·30 |
| 27 | 23 5 39·67 | 6 42 18·3 | ·2809359 | 12 43·3 | 344 19 34·0 | 0 46 29·7 | ·30 |
| 28 | 23 5 30·99 | 6 43 13·1 | ·2808690 | 12 39·3 | 344 20 12·5 | 0 46 29·7 | ·30 |
| 29 | 23 5 22·26 | 6 44 8·0 | ·2808087 | 12 35·2 | 344 20 51·0 | 0 46 29·7 | ·30 |
| 30 | 23 5 13·50 | 6 45 3·1 | ·2807551 | 12 31·1 | 344 21 29·6 | 0 46 29·7 | ·30 |
| 31 | 23 5 4·71 | 6 45 58·4 | ·2807081 | 12 27·0 | 344 22 8·2 | 0 46 29·6 | ·30 |
| | 23 4 55·89 | S. 6 46 53·8 | 1·2806679 | 12 22·9 | 344 22 46·8 | S. 0 46 29·6 | 1·30 |

# AUGUST, 1839.

At Transit over the Meridian of Greenwich.

| Day of the Month. | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|---|
| | h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 1 | 23 8 56 ·63 | — 0 ·27 | 0 ·13 | S. 6 21 16 ·1 | — 1 ·8 | 1 ·9 | 0 ·4 |
| 2 | 23 8 50 ·08 | 0 ·28 | 0 ·13 | 6 21 58 ·9 | 1 ·8 | 1 ·9 | 0 ·5 |
| 3 | 23 8 43 ·41 | 0 ·28 | 0 ·13 | 6 22 42 ·3 | 1 ·8 | 1 ·9 | 0 ·5 |
| 4 | 23 8 36 ·62 | 0 ·28 | 0 ·13 | 6 23 26 ·4 | 1 ·9 | 1 ·9 | 0 ·5 |
| 5 | 23 8 29 ·73 | 0 ·29 | 0 ·13 | 6 24 11 ·1 | 1 ·9 | 1 ·9 | 0 ·5 |
| 6 | 23 8 22 ·73 | 0 ·29 | 0 ·13 | 6 24 56 ·6 | 1 ·9 | 1 ·9 | 0 ·5 |
| 7 | 23 8 15 ·61 | 0 ·30 | 0 ·13 | 6 25 42 ·7 | 1 ·9 | 1 ·9 | 0 ·5 |
| 8 | 23 8 8 ·39 | 0 ·30 | 0 ·13 | 6 26 29 ·4 | 2 ·0 | 1 ·9 | 0 ·5 |
| 9 | 23 8 1 ·06 | 0 ·31 | 0 ·13 | 6 27 16 ·8 | 2 ·0 | 1 ·9 | 0 ·5 |
| 10 | 23 7 53 ·63 | 0 ·31 | 0 ·13 | 6 28 4 ·7 | 2 ·0 | 1 ·9 | 0 ·5 |
| 11 | 23 7 46 ·09 | 0 ·32 | 0 ·13 | 6 28 53 ·3 | 2 ·0 | 1 ·9 | 0 ·5 |
| 12 | 23 7 38 ·45 | 0 ·32 | 0 ·13 | 6 29 42 ·4 | 2 ·1 | 1 ·9 | 0 ·5 |
| 13 | 23 7 30 ·73 | 0 ·32 | 0 ·13 | 6 30 32 ·0 | 2 ·1 | 1 ·9 | 0 ·5 |
| 14 | 23 7 22 ·93 | 0 ·33 | 0 ·13 | 6 31 22 ·0 | 2 ·1 | 1 ·9 | 0 ·5 |
| 15 | 23 7 15 ·04 | 0 ·33 | 0 ·13 | 6 32 12 ·4 | 2 ·1 | 2 ·0 | 0 ·5 |
| 16 | 23 7 7 ·08 | 0 ·33 | 0 ·13 | 6 33 3 ·3 | 2 ·1 | 2 ·0 | 0 ·5 |
| 17 | 23 6 59 ·04 | 0 ·34 | 0 ·13 | 6 33 54 ·7 | 2 ·2 | 2 ·0 | 0 ·5 |
| 18 | 23 6 50 ·93 | 0 ·34 | 0 ·13 | 6 34 46 ·5 | 2 ·2 | 2 ·0 | 0 ·5 |
| 19 | 23 6 42 ·75 | 0 ·34 | 0 ·13 | 6 35 38 ·6 | 2 ·2 | 2 ·0 | 0 ·5 |
| 20 | 23 6 34 ·50 | 0 ·35 | 0 ·13 | 6 36 31 ·0 | 2 ·2 | 2 ·0 | 0 ·5 |
| 21 | 23 6 26 ·18 | 0 ·35 | 0 ·13 | 6 37 23 ·9 | 2 ·2 | 2 ·0 | 0 ·5 |
| 22 | 23 6 17 ·80 | 0 ·35 | 0 ·13 | 6 38 17 ·1 | 2 ·2 | 2 ·0 | 0 ·5 |
| 23 | 23 6 9 ·36 | 0 ·35 | 0 ·13 | 6 39 10 ·6 | 2 ·2 | 2 ·0 | 0 ·5 |
| 24 | 23 6 0 ·86 | 0 ·36 | 0 ·13 | 6 40 4 ·4 | 2 ·2 | 2 ·0 | 0 ·5 |
| 25 | 23 5 52 ·31 | 0 ·36 | 0 ·13 | 6 40 58 ·5 | 2 ·3 | 2 ·0 | 0 ·5 |
| 26 | 23 5 43 ·71 | 0 ·36 | 0 ·13 | 6 41 52 ·8 | 2 ·3 | 2 ·0 | 0 ·5 |
| 27 | 23 5 35 ·08 | 0 ·36 | 0 ·13 | 6 42 47 ·3 | 2 ·3 | 2 ·0 | 0 ·5 |
| 28 | 23 5 26 ·40 | 0 ·36 | 0 ·13 | 6 43 42 ·0 | 2 ·3 | 2 ·0 | 0 ·5 |
| 29 | 23 5 17 ·68 | 0 ·36 | 0 ·13 | 6 44 36 ·9 | 2 ·3 | 2 ·0 | 0 ·5 |
| 30 | 23 5 8 ·92 | 0 ·37 | 0 ·13 | 6 45 31 ·9 | 2 ·3 | 2 ·0 | 0 ·5 |
| 31 | 23 5 0 ·13 | 0 ·37 | 0 ·13 | 6 46 27 ·1 | 2 ·3 | 2 ·0 | 0 ·5 |
| 32 | 23 4 51 ·32 | — 0 ·37 | 0 ·13 | S. 6 47 22 ·4 | — 2 ·3 | 2 ·0 | 0 ·5 |

# SEPTEMBER, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | |
|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ |
| 1 | 23 4 55·89 | S. 6 46 53·8 | 1·2806679 | 12 22·9 | 344 22 46·8 | S. 0 46 29·6 |
| 2 | 23 4 47·05 | 6 47 49·3 | ·2806345 | 12 18·8 | 344 23 25·5 | 0 46 29·6 |
| 3 | 23 4 38·18 | 6 48 44·9 | ·2806079 | 12 14·8 | 344 24 4·2 | 0 46 29·6 |
| 4 | 23 4 29·29 | 6 49 40·6 | ·2805881 | 12 10·7 | 344 24 42·8 | 0 46 29·6 |
| 5 | 23 4 20·39 | 6 50 36·3 | ·2805751 | 12 6·6 | 344 25 21·4 | 0 46 29·6 |
| 6 | 23 4 11·47 | 6 51 32·0 | ·2805689 | 12 2·6 | 344 26 0·0 | 0 46 29·6 |
| 7 | 23 4 2·54 | 6 52 27·7 | ·2805696 | 11 58·5 | 344 26 38·5 | 0 46 29·5 |
| 8 | 23 3 53·61 | 6 53 23·4 | ·2805772 | 11 54·4 | 344 27 17·0 | 0 46 29·5 |
| 9 | 23 3 44·68 | 6 54 19·0 | ·2805916 | 11 50·3 | 344 27 55·4 | 0 46 29·5 |
| 10 | 23 3 35·76 | 6 55 14·5 | ·2806130 | 11 46·2 | 344 28 33·9 | 0 46 29·5 |
| 11 | 23 3 26·85 | 6 56 9·8 | ·2806414 | 11 42·1 | 344 29 12·5 | 0 46 29·5 |
| 12 | 23 3 17·94 | 6 57 5·0 | ·2806766 | 11 38·1 | 344 29 51·0 | 0 46 29·5 |
| 13 | 23 3 9·05 | 6 58 0·0 | ·2807186 | 11 34·0 | 344 30 29·5 | 0 46 29·5 |
| 14 | 23 3 0·19 | 6 58 54·8 | ·2807674 | 11 29·9 | 344 31 8·1 | 0 46 29·5 |
| 15 | 23 2 51·35 | 6 59 49·4 | ·2808229 | 11 25·9 | 344 31 46·8 | 0 46 29·4 |
| 16 | 23 2 42·54 | 7 0 43·8 | ·2808852 | 11 21·8 | 344 32 25·4 | 0 46 29·4 |
| 17 | 23 2 33·76 | 7 1 38·0 | ·2809543 | 11 17·7 | 344 33 4·1 | 0 46 29·4 |
| 18 | 23 2 25·02 | 7 2 31·9 | ·2810301 | 11 13·6 | 344 33 42·7 | 0 46 29·4 |
| 19 | 23 2 16·32 | 7 3 25·5 | ·2811126 | 11 9·5 | 344 34 21·3 | 0 46 29·4 |
| 20 | 23 2 7·66 | 7 4 18·7 | ·2812017 | 11 5·5 | 344 34 59·9 | 0 46 29·4 |
| 21 | 23 1 59·04 | 7 5 11·6 | ·2812975 | 11 1·4 | 344 35 38·4 | 0 46 29·4 |
| 22 | 23 1 50·46 | 7 6 4·1 | ·2814000 | 10 57·3 | 344 36 16·9 | 0 46 29·3 |
| 23 | 23 1 41·94 | 7 6 56·2 | ·2815091 | 10 53·3 | 344 36 55·4 | 0 46 29·3 |
| 24 | 23 1 33·47 | 7 7 48·0 | ·2816247 | 10 49·2 | 344 37 33·8 | 0 46 29·3 |
| 25 | 23 1 25·07 | 7 8 39·3 | ·2817467 | 10 45·1 | 344 38 12·3 | 0 46 29·3 |
| 26 | 23 1 16·73 | 7 9 30·2 | ·2818752 | 10 41·1 | 344 38 50·8 | 0 46 29·3 |
| 27 | 23 1 8·46 | 7 10 20·6 | ·2820101 | 10 37·0 | 344 39 29·4 | 0 46 29·3 |
| 28 | 23 1 0·26 | 7 11 10·5 | ·2821513 | 10 32·9 | 344 40 8·0 | 0 46 29·3 |
| 29 | 23 0 52·13 | 7 11 59·8 | ·2822989 | 10 28·9 | 344 40 46·6 | 0 46 29·3 |
| 30 | 23 0 44·08 | 7 12 48·6 | ·2824528 | 10 24·8 | 344 41 25·3 | 0 46 29·2 |
| 31 | 23 0 36·11 | S. 7 13 36·9 | 1·2826132 | 10 20·7 | 344 42 4·0 | S. 0 46 29·2 |

# SEPTEMBER, 1839.

At Transit over the Meridian of Greenwich.

| Day of the Month. | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|---|
| | h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 1 | 23 4 51 ·32 | — 0 ·37 | 0 ·13 | S. 6 47 22 ·4 | — 2 ·3 | 2 ·0 | 0 ·5 |
| 2 | 23 4 42 ·49 | 0 ·37 | 0 ·13 | 6 48 17 ·8 | 2 ·3 | 2 ·0 | 0 ·5 |
| 3 | 23 4 33 ·64 | 0 ·37 | 0 ·13 | 6 49 13 ·3 | 2 ·3 | 2 ·0 | 0 ·5 |
| 4 | 23 4 24 ·77 | 0 ·37 | 0 ·13 | 6 50 8 ·9 | 2 ·3 | 2 ·0 | 0 ·5 |
| 5 | 23 4 15 ·89 | 0 ·37 | 0 ·13 | 6 51 4 ·4 | 2 ·3 | 2 ·0 | 0 ·5 |
| 6 | 23 4 6 ·99 | 0 ·37 | 0 ·13 | 6 52 0 ·0 | 2 ·3 | 2 ·0 | 0 ·5 |
| 7 | 23 3 58 ·09 | 0 ·37 | 0 ·13 | 6 52 55 ·5 | 2 ·3 | 2 ·0 | 0 ·5 |
| 8 | 23 3 49 ·18 | 0 ·37 | 0 ·13 | 6 53 51 ·0 | 2 ·3 | 2 ·0 | 0 ·5 |
| 9 | 23 3 40 ·28 | 0 ·37 | 0 ·13 | 6 54 46 ·4 | 2 ·3 | 2 ·0 | 0 ·5 |
| 10 | 23 3 31 ·39 | 0 ·37 | 0 ·13 | 6 55 41 ·7 | 2 ·3 | 2 ·0 | 0 ·5 |
| 11 | 23 3 22 ·50 | 0 ·37 | 0 ·13 | 6 56 36 ·8 | 2 ·3 | 2 ·0 | 0 ·5 |
| 12 | 23 3 13 ·63 | 0 ·37 | 0 ·13 | 6 57 31 ·7 | 2 ·3 | 2 ·0 | 0 ·5 |
| 13 | 23 3 4 ·78 | 0 ·37 | 0 ·13 | 6 58 26 ·4 | 2 ·3 | 2 ·0 | 0 ·5 |
| 14 | 23 2 55 ·95 | 0 ·37 | 0 ·13 | 6 59 21 ·0 | 2 ·3 | 2 ·0 | 0 ·5 |
| 15 | 23 2 47 ·15 | 0 ·37 | 0 ·13 | 7 0 15 ·3 | 2 ·3 | 2 ·0 | 0 ·5 |
| 16 | 23 2 38 ·38 | 0 ·36 | 0 ·13 | 7 1 9 ·5 | 2 ·3 | 2 ·0 | 0 ·5 |
| 17 | 23 2 29 ·65 | 0 ·36 | 0 ·13 | 7 2 3 ·4 | 2 ·2 | 2 ·0 | 0 ·5 |
| 18 | 23 2 20 ·95 | 0 ·36 | 0 ·13 | 7 2 57 ·1 | 2 ·2 | 2 ·0 | 0 ·5 |
| 19 | 23 2 12 ·29 | 0 ·36 | 0 ·13 | 7 3 50 ·4 | 2 ·2 | 2 ·0 | 0 ·5 |
| 20 | 23 2 3 ·67 | 0 ·36 | 0 ·13 | 7 4 43 ·3 | 2 ·2 | 2 ·0 | 0 ·5 |
| 21 | 23 1 55 ·09 | 0 ·36 | 0 ·13 | 7 5 35 ·8 | 2 ·2 | 2 ·0 | 0 ·5 |
| 22 | 23 1 46 ·56 | 0 ·35 | 0 ·13 | 7 6 28 ·0 | 2 ·2 | 2 ·0 | 0 ·5 |
| 23 | 23 1 38 ·09 | 0 ·35 | 0 ·13 | 7 7 19 ·8 | 2 ·2 | 2 ·0 | 0 ·5 |
| 24 | 23 1 29 ·67 | 0 ·35 | 0 ·13 | 7 8 11 ·2 | 2 ·1 | 2 ·0 | 0 ·5 |
| 25 | 23 1 21 ·32 | 0 ·35 | 0 ·13 | 7 9 2 ·2 | 2 ·1 | 2 ·0 | 0 ·5 |
| 26 | 23 1 13 ·04 | 0 ·34 | 0 ·13 | 7 9 52 ·7 | 2 ·1 | 2 ·0 | 0 ·5 |
| 27 | 23 1 4 ·82 | 0 ·34 | 0 ·13 | 7 10 42 ·8 | 2 ·1 | 2 ·0 | 0 ·5 |
| 28 | 23 0 56 ·67 | 0 ·34 | 0 ·13 | 7 11 32 ·3 | 2 ·1 | 2 ·0 | 0 ·5 |
| 29 | 23 0 48 ·60 | 0 ·33 | 0 ·13 | 7 12 21 ·3 | 2 ·0 | 1 ·9 | 0 ·5 |
| 30 | 23 0 40 ·61 | 0 ·33 | 0 ·13 | 7 13 9 ·7 | 2 ·0 | 1 ·9 | 0 ·5 |
| 31 | 23 0 32 ·70 | — 0 ·33 | 0 ·13 | S. 7 13 57 ·6 | — 2 ·0 | 1 ·9 | 0 ·5 |

# OCTOBER, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. of Rad. Vect. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 23 0 36·11 | S. 7 13 36·9 | 1·2826132 | 10 20·7 | 344 42 4·0 | S. 0 46 29·2 | 1·3029167 |
| 2 | 23 0 28·23 | 7 14 24·6 | ·2827799 | 10 16·7 | 344 42 42·6 | 0 46 29·2 | ·3029170 |
| 3 | 23 0 20·43 | 7 15 11·8 | ·2829528 | 10 12·6 | 344 43 21·1 | 0 46 29·2 | ·3029174 |
| 4 | 23 0 12·71 | 7 15 58·4 | ·2831317 | 10 8·5 | 344 43 59·7 | 0 46 29·2 | ·3029178 |
| 5 | 23 0 5·09 | 7 16 44·3 | ·2833165 | 10 4·5 | 344 44 38·2 | 0 46 29·2 | ·3029181 |
| 6 | 22 59 57·57 | 7 17 29·6 | ·2835073 | 10 0·4 | 344 45 16·6 | 0 46 29·2 | ·3029185 |
| 7 | 22 59 50·15 | 7 18 14·1 | ·2837041 | 9 56·4 | 344 45 55·1 | 0 46 29·1 | ·3029188 |
| 8 | 22 59 42·84 | 7 18 57·9 | ·2839068 | 9 52·3 | 344 46 33·6 | 0 46 29·1 | ·3029191 |
| 9 | 22 59 35·63 | 7 19 41·0 | ·2841153 | 9 48·3 | 344 47 12·1 | 0 46 29·1 | ·3029195 |
| 10 | 22 59 28·54 | 7 20 23·4 | ·2843295 | 9 44·3 | 344 47 50·7 | 0 46 29·1 | ·3029199 |
| 11 | 22 59 21·56 | 7 21 5·0 | ·2845492 | 9 40·2 | 344 48 29·3 | 0 46 29·1 | ·3029202 |
| 12 | 22 59 14·70 | 7 21 45·8 | ·2847745 | 9 36·1 | 344 49 7·9 | 0 46 29·1 | ·3029206 |
| 13 | 22 59 7·96 | 7 22 25·8 | ·2850053 | 9 32·1 | 344 49 46·5 | 0 46 29·1 | ·3029209 |
| 14 | 22 59 1·35 | 7 23 5·0 | ·2852414 | 9 28·0 | 344 50 25·2 | 0 46 29·1 | ·3029213 |
| 15 | 22 58 54·87 | 7 23 43·4 | ·2854828 | 9 24·0 | 344 51 3·8 | 0 46 29·0 | ·3029216 |
| 16 | 22 58 48·51 | 7 24 20·9 | ·2857295 | 9 20·0 | 344 51 42·5 | 0 46 29·0 | ·3029220 |
| 17 | 22 58 42·29 | 7 24 57·6 | ·2859813 | 9 15·9 | 344 52 21·1 | 0 46 29·0 | ·3029223 |
| 18 | 22 58 36·20 | 7 25 33·4 | ·2862381 | 9 11·9 | 344 52 59·6 | 0 46 29·0 | ·3029227 |
| 19 | 22 58 30·24 | 7 26 8·4 | ·2864997 | 9 7·9 | 344 53 38·1 | 0 46 29·0 | ·3029230 |
| 20 | 22 58 24·42 | 7 26 42·5 | ·2867661 | 9 3·9 | 344 54 16·6 | 0 46 29·0 | ·3029234 |
| 21 | 22 58 18·74 | 7 27 15·7 | ·2870372 | 8 59·8 | 344 54 55·1 | 0 46 29·0 | ·3029237 |
| 22 | 22 58 13·20 | 7 27 47·9 | ·2873130 | 8 55·8 | 344 55 33·6 | 0 46 28·9 | ·3029240 |
| 23 | 22 58 7·81 | 7 28 19·1 | ·2875933 | 8 51·8 | 344 56 12·1 | 0 46 28·9 | ·3029244 |
| 24 | 22 58 2·57 | 7 28 49·4 | ·2878781 | 8 47·8 | 344 56 50·7 | 0 46 28·9 | ·3029247 |
| 25 | 22 57 57·48 | 7 29 18·7 | ·2881674 | 8 43·8 | 344 57 29·4 | 0 46 28·9 | ·3029251 |
| 26 | 22 57 52·55 | 7 29 47·0 | ·2884610 | 8 39·8 | 344 58 8·1 | 0 46 28·9 | ·3029254 |
| 27 | 22 57 47·78 | 7 30 14·4 | ·2887588 | 8 35·7 | 344 58 46·7 | 0 46 28·9 | ·3029258 |
| 28 | 22 57 43·16 | 7 30 40·7 | ·2890606 | 8 31·7 | 344 59 25·4 | 0 46 28·8 | ·3029261 |
| 29 | 22 57 38·70 | 7 31 6·0 | ·2893663 | 8 27·7 | 345 0 4·0 | 0 46 28·8 | ·3029265 |
| 30 | 22 57 34·41 | 7 31 30·3 | ·2896760 | 8 23·7 | 345 0 42·6 | 0 46 28·8 | ·3029268 |
| 31 | 22 57 30·27 | 7 31 53·6 | ·2899896 | 8 19·7 | 345 1 21·2 | 0 46 28·8 | ·3029271 |
| 32 | 22 57 26·30 | S. 7 32 15·9 | 1·2903068 | 8 15·7 | 345 1 59·7 | S. 0 46 28·8 | 1·3029275 |

# OCTOBER, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 3 0 32 ·70 | — 0 ·33 | 0 ·13 | S. 7 13 57 ·6 | — 2 ·0 | 1 ·9 | 0 ·5 |
| 3 0 24 ·88 | 0 ·32 | 0 ·13 | 7 14 44 ·9 | 2 ·0 | 1 ·9 | 0 ·5 |
| 3 0 17 ·14 | 0 ·32 | 0 ·13 | 7 15 31 ·7 | 1 ·9 | 1 ·9 | 0 ·4 |
| 3 0 9 ·49 | 0 ·32 | 0 ·13 | 7 16 17 ·9 | 1 ·9 | 1 ·9 | 0 ·4 |
| 3 0 1 ·93 | 0 ·31 | 0 ·13 | 7 17 3 ·4 | 1 ·9 | 1 ·9 | 0 ·4 |
| 2 59 54 ·47 | 0 ·31 | 0 ·13 | 7 17 48 ·3 | 1 ·9 | 1 ·9 | 0 ·4 |
| 2 59 47 ·11 | 0 ·30 | 0 ·13 | 7 18 32 ·4 | 1 ·8 | 1 ·9 | 0 ·4 |
| 2 59 39 ·86 | 0 ·30 | 0 ·13 | 7 19 15 ·7 | 1 ·8 | 1 ·9 | 0 ·4 |
| 2 59 32 ·72 | 0 ·30 | 0 ·13 | 7 19 58 ·4 | 1 ·8 | 1 ·9 | 0 ·4 |
| 2 59 25 ·69 | 0 ·29 | 0 ·13 | 7 20 40 ·4 | 1 ·8 | 1 ·9 | 0 ·4 |
| 2 59 18 ·77 | 0 ·29 | 0 ·13 | 7 21 21 ·5 | 1 ·7 | 1 ·9 | 0 ·4 |
| 2 59 11 ·98 | 0 ·28 | 0 ·13 | 7 22 1 ·9 | 1 ·7 | 1 ·9 | 0 ·4 |
| 2 59 5 ·31 | 0 ·28 | 0 ·13 | 7 22 41 ·5 | 1 ·6 | 1 ·9 | 0 ·4 |
| 2 58 58 ·77 | 0 ·27 | 0 ·13 | 7 23 20 ·2 | 1 ·6 | 1 ·9 | 0 ·4 |
| 2 58 52 ·36 | 0 ·27 | 0 ·13 | 7 23 58 ·2 | 1 ·6 | 1 ·9 | 0 ·4 |
| 2 58 46 ·07 | 0 ·26 | 0 ·13 | 7 24 35 ·3 | 1 ·5 | 1 ·9 | 0 ·4 |
| 2 58 39 ·92 | 0 ·26 | 0 ·13 | 7 25 11 ·5 | 1 ·5 | 1 ·9 | 0 ·4 |
| 2 58 33 ·90 | 0 ·25 | 0 ·13 | 7 25 46 ·9 | 1 ·5 | 1 ·9 | 0 ·4 |
| 2 58 28 ·01 | 0 ·25 | 0 ·13 | 7 26 21 ·5 | 1 ·4 | 1 ·9 | 0 ·4 |
| 2 58 22 ·25 | 0 ·24 | 0 ·13 | 7 26 55 ·2 | 1 ·4 | 1 ·9 | 0 ·4 |
| 2 58 16 ·64 | 0 ·23 | 0 ·13 | 7 27 27 ·9 | 1 ·3 | 1 ·9 | 0 ·4 |
| 2 58 11 ·17 | 0 ·22 | 0 ·13 | 7 27 59 ·6 | 1 ·3 | 1 ·9 | 0 ·4 |
| 2 58 5 ·85 | 0 ·22 | 0 ·13 | 7 28 30 ·4 | 1 ·3 | 1 ·9 | 0 ·4 |
| 2 58 0 ·68 | 0 ·21 | 0 ·13 | 7 29 0 ·2 | 1 ·2 | 1 ·9 | 0 ·4 |
| 2 57 55 ·66 | 0 ·21 | 0 ·13 | 7 29 29 ·1 | 1 ·2 | 1 ·9 | 0 ·4 |
| 2 57 50 ·80 | 0 ·20 | 0 ·13 | 7 29 57 ·0 | 1 ·1 | 1 ·9 | 0 ·4 |
| 2 57 46 ·10 | 0 ·19 | 0 ·13 | 7 30 23 ·9 | 1 ·1 | 1 ·9 | 0 ·4 |
| 2 57 41 ·55 | 0 ·19 | 0 ·13 | 7 30 49 ·8 | 1 ·1 | 1 ·9 | 0 ·4 |
| 2 57 37 ·16 | 0 ·18 | 0 ·13 | 7 31 14 ·7 | 1 ·0 | 1 ·9 | 0 ·4 |
| 2 57 32 ·94 | 0 ·17 | 0 ·13 | 7 31 38 ·6 | 1 ·0 | 1 ·9 | 0 ·4 |
| 2 57 28 ·87 | 0 ·17 | 0 ·13 | 7 32 1 ·5 | 0 ·9 | 1 ·9 | 0 ·4 |
| 2 57 24 ·97 | — 0 ·16 | 0 ·13 | S. 7 32 23 ·3 | — 0 ·9 | 1 ·9 | 0 ·4 |

# NOVEMBER, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | R |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 22 57 26·30 | S. 7 32 15·9 | 1·2903068 | 8 15·7 | 345 1 59·7 | S. 0 46 28·8 | 1 |
| 2 | 22 57 22·49 | 7 32 37·1 | ·2906276 | 8 11·7 | 345 2 38·2 | 0 46 28·8 | |
| 3 | 22 57 18·85 | 7 32 57·2 | ·2909519 | 8 7·7 | 345 3 16·7 | 0 46 28·7 | |
| 4 | 22 57 15·39 | 7 33 16·2 | ·2912795 | 8 3·7 | 345 3 55·3 | 0 46 28·7 | |
| 5 | 22 57 12·10 | 7 33 34·1 | ·2916104 | 7 59·7 | 345 4 33·8 | 0 46 28·7 | |
| 6 | 22 57 8·99 | 7 33 50·9 | ·2919444 | 7 55·7 | 345 5 12·4 | 0 46 28·7 | |
| 7 | 22 57 6·06 | 7 34 6·6 | ·2922814 | 7 51·7 | 345 5 51·0 | 0 46 28·7 | |
| 8 | 22 57 3·30 | 7 34 21·2 | ·2926214 | 7 47·8 | 345 6 29·7 | 0 46 28·7 | |
| 9 | 22 57 0·73 | 7 34 34·6 | ·2929642 | 7 43·8 | 345 7 8·4 | 0 46 28·6 | |
| 10 | 22 56 58·34 | 7 34 46·9 | ·2933096 | 7 39·9 | 345 7 47·1 | 0 46 28·6 | |
| 11 | 22 56 56·13 | 7 34 58·0 | ·2936576 | 7 35·9 | 345 8 25·8 | 0 46 28·6 | |
| 12 | 22 56 54·10 | 7 35 8·0 | ·2940081 | 7 31·9 | 345 9 4·4 | 0 46 28·6 | |
| 13 | 22 56 52·26 | 7 35 16·8 | ·2943608 | 7 28·0 | 345 9 43·1 | 0 46 28·6 | |
| 14 | 22 56 50·60 | 7 35 24·5 | ·2947157 | 7 24·0 | 345 10 21·7 | 0 46 28·6 | |
| 15 | 22 56 49·12 | 7 35 31·1 | ·2950727 | 7 20·1 | 345 11 0·3 | 0 46 28·5 | |
| 16 | 22 56 47·83 | 7 35 36·5 | ·2954316 | 7 16·1 | 345 11 38·8 | 0 46 28·5 | |
| 17 | 22 56 46·72 | 7 35 40·7 | ·2957923 | 7 12·2 | 345 12 17·3 | 0 46 28·5 | |
| 18 | 22 56 45·80 | 7 35 43·7 | ·2961547 | 7 8·3 | 345 12 55·8 | 0 46 28·5 | |
| 19 | 22 56 45·07 | 7 35 45·6 | ·2965186 | 7 4·3 | 345 13 34·4 | 0 46 28·5 | |
| 20 | 22 56 44·54 | 7 35 46·3 | ·2968841 | 7 0·3 | 345 14 13·0 | 0 46 28·4 | |
| 21 | 22 56 44·19 | 7 35 45·8 | ·2972511 | 6 56·4 | 345 14 51·7 | 0 46 28·4 | |
| 22 | 22 56 44·04 | 7 35 44·1 | ·2976194 | 6 52·4 | 345 15 30·4 | 0 46 28·4 | |
| 23 | 22 56 44·08 | 7 35 41·3 | ·2979888 | 6 48·5 | 345 16 9·1 | 0 46 28·4 | |
| 24 | 22 56 44·31 | 7 35 37·3 | ·2983592 | 6 44·6 | 345 16 47·8 | 0 46 28·4 | |
| 25 | 22 56 44·73 | 7 35 32·2 | ·2987305 | 6 40·7 | 345 17 26·5 | 0 46 28·4 | |
| 26 | 22 56 45·33 | 7 35 25·9 | ·2991027 | 6 36·8 | 345 18 5·2 | 0 46 28·3 | |
| 27 | 22 56 46·13 | 7 35 18·3 | ·2994756 | 6 32·9 | 345 18 43·8 | 0 46 28·3 | |
| 28 | 22 56 47·12 | 7 35 9·5 | ·2998490 | 6 29·0 | 345 19 22·3 | 0 46 28·3 | |
| 29 | 22 56 48·29 | 7 34 59·6 | ·3002230 | 6 25·0 | 345 20 0·9 | 0 46 28·3 | |
| 30 | 22 56 49·65 | 7 34 48·5 | ·3005974 | 6 21·1 | 345 20 39·4 | 0 46 28·2 | |
| [illegible] | [illegible] 51·21 | S. 7 34 36·3 | 1·3009721 | 6 17·2 | 345 21 18·0 | S. 0 46 28·2 | 1 |

# NOVEMBER 1839.

At Transit over the Meridian of Greenwich.

| Month. | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|---|
| | h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 1 | 22 57 24 ·97 | — 0 ·16 | 0 ·13 | S. 7 32 23 ·3 | — 0 ·9 | 1 ·9 | 0 ·4 |
| 2 | 22 57 21 ·23 | 0 ·15 | 0 ·13 | 7 32 44 ·1 | 0 ·8 | 1 ·9 | 0 ·4 |
| 3 | 22 57 17 ·66 | 0 ·15 | 0 ·13 | 7 33 3 ·8 | 0 ·8 | 1 ·9 | 0 ·4 |
| 4 | 22 57 14 ·26 | 0 ·14 | 0 ·13 | 7 33 22 ·3 | 0 ·7 | 1 ·9 | 0 ·4 |
| 5 | 22 57 11 ·04 | 0 ·13 | 0 ·13 | 7 33 39 ·8 | 0 ·7 | 1 ·9 | 0 ·4 |
| 6 | 22 57 8 ·00 | 0 ·12 | 0 ·13 | 7 33 56 ·2 | 0 ·7 | 1 ·9 | 0 ·4 |
| 7 | 22 57 5 ·13 | 0 ·12 | 0 ·13 | 7 34 11 ·5 | 0 ·6 | 1 ·9 | 0 ·4 |
| 8 | 22 57 2 ·44 | 0 ·11 | 0 ·13 | 7 34 25 ·7 | 0 ·6 | 1 ·9 | 0 ·4 |
| 9 | 22 56 59 ·94 | 0 ·10 | 0 ·13 | 7 34 38 ·7 | 0 ·5 | 1 ·9 | 0 ·4 |
| 10 | 22 56 57 ·61 | 0 ·09 | 0 ·13 | 7 34 50 ·6 | 0 ·5 | 1 ·9 | 0 ·4 |
| 11 | 22 56 55 ·47 | 0 ·09 | 0 ·13 | 7 35 1 ·3 | 0 ·4 | 1 ·9 | 0 ·4 |
| 12 | 22 56 53 ·50 | 0 ·08 | 0 ·13 | 7 35 10 ·9 | 0 ·4 | 1 ·9 | 0 ·4 |
| 13 | 22 56 51 ·72 | 0 ·07 | 0 ·13 | 7 35 19 ·3 | 0 ·3 | 1 ·9 | 0 ·4 |
| 14 | 22 56 50 ·12 | 0 ·06 | 0 ·13 | 7 35 26 ·6 | 0 ·3 | 1 ·9 | 0 ·4 |
| 15 | 22 56 48 ·70 | 0 ·06 | 0 ·13 | 7 35 32 ·8 | 0 ·2 | 1 ·9 | 0 ·4 |
| 16 | 22 56 47 ·47 | 0 ·05 | 0 ·13 | 7 35 37 ·9 | 0 ·2 | 1 ·9 | 0 ·4 |
| 17 | 22 56 46 ·42 | 0 ·04 | 0 ·13 | 7 35 41 ·7 | 0 ·1 | 1 ·9 | 0 ·4 |
| 18 | 22 56 45 ·56 | 0 ·03 | 0 ·13 | 7 35 44 ·4 | — 0 ·1 | 1 ·9 | 0 ·4 |
| 19 | 22 56 44 ·89 | 0 ·02 | 0 ·13 | 7 35 45 ·9 | 0 ·0 | 1 ·9 | 0 ·4 |
| 20 | 22 56 44 ·42 | 0 ·02 | 0 ·13 | 7 35 46 ·3 | 0 ·0 | 1 ·9 | 0 ·4 |
| 21 | 22 56 44 ·13 | — 0 ·01 | 0 ·13 | 7 35 45 ·5 | + 0 ·1 | 1 ·9 | 0 ·4 |
| 22 | 22 56 44 ·03 | 0 ·00 | 0 ·13 | 7 35 43 ·5 | 0 ·1 | 1 ·9 | 0 ·4 |
| 23 | 22 56 44 ·13 | + 0 ·01 | 0 ·13 | 7 35 40 ·3 | 0 ·2 | 1 ·9 | 0 ·4 |
| 24 | 22 56 44 ·41 | 0 ·02 | 0 ·13 | 7 35 36 ·0 | 0 ·2 | 1 ·9 | 0 ·4 |
| 25 | 22 56 44 ·88 | 0 ·02 | 0 ·13 | 7 35 30 ·5 | 0 ·3 | 1 ·9 | 0 ·4 |
| 26 | 22 56 45 ·53 | 0 ·03 | 0 ·13 | 7 35 23 ·9 | 0 ·3 | 1 ·9 | 0 ·4 |
| 27 | 22 56 46 ·38 | 0 ·04 | 0 ·13 | 7 35 16 ·0 | 0 ·3 | 1 ·9 | 0 ·4 |
| 28 | 22 56 47 ·41 | 0 ·05 | 0 ·13 | 7 35 6 ·9 | 0 ·4 | 1 ·9 | 0 ·4 |
| 29 | 22 56 48 ·63 | 0 ·05 | 0 ·13 | 7 34 56 ·7 | 0 ·4 | 1 ·9 | 0 ·4 |
| 30 | 22 56 50 ·04 | 0 ·06 | 0 ·13 | 7 34 45 ·4 | 0 ·5 | 1 ·9 | 0 ·4 |
| 31 | 22 56 51 ·64 | + 0 ·07 | 0 ·13 | S. 7 34 32 ·9 | + 0 ·5 | 1 ·9 | 0 ·4 |

# DECEMBER, 1839.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 22 56 51·21 | S. 7 34 36·3 | 1·3009721 | 6 17·2 | 345 21 18·0 | S. 0 46 28·2 | 1 |
| 2 | 22 56 52·96 | 7 34 22·9 | ·3013469 | 6 13·3 | 345 21 56·5 | 0 46 28·2 | |
| 3 | 22 56 54·91 | 7 34 8·2 | ·3017216 | 6 9·4 | 345 22 35·1 | 0 46 28·2 | |
| 4 | 22 56 57·05 | 7 33 52·3 | ·3020964 | 6 5·5 | 345 23 13·8 | 0 46 28·2 | |
| 5 | 22 56 59·38 | 7 33 35·3 | ·3024711 | 6 1·6 | 345 23 52·5 | 0 46 28·1 | |
| 6 | 22 57 1·91 | 7 33 17·1 | ·3028453 | 5 57·7 | 345 24 31·2 | 0 46 28·1 | |
| 7 | 22 57 4·63 | 7 32 57·7 | ·3032189 | 5 53·8 | 345 25 9·9 | 0 46 28·1 | |
| 8 | 22 57 7·54 | 7 32 37·1 | ·3035920 | 5 49·9 | 345 25 48·6 | 0 46 28·1 | |
| 9 | 22 57 10·64 | 7 32 15·3 | ·3039644 | 5 46·0 | 345 26 27·3 | 0 46 28·1 | |
| 10 | 22 57 13·93 | 7 31 52·4 | ·3043360 | 5 42·1 | 345 27 6·0 | 0 46 28·0 | |
| 11 | 22 57 17·41 | 7 31 28·4 | ·3047067 | 5 38·3 | 345 27 44·7 | 0 46 28·0 | |
| 12 | 22 57 21·07 | 7 31 3·3 | ·3050764 | 5 34·4 | 345 28 23·3 | 0 46 28·0 | |
| 13 | 22 57 24·91 | 7 30 37·0 | ·3054449 | 5 30·6 | 345 29 1·9 | 0 46 28·0 | |
| 14 | 22 57 28·93 | 7 30 9·6 | ·3058121 | 5 26·7 | 345 29 40·4 | 0 46 28·0 | |
| 15 | 22 57 33·14 | 7 29 41·1 | ·3061780 | 5 22·8 | 345 30 19·0 | 0 46 27·9 | |
| 16 | 22 57 37·53 | 7 29 11·4 | ·3065425 | 5 19·0 | 345 30 57·5 | 0 46 27·9 | |
| 17 | 22 57 42·11 | 7 28 40·6 | ·3069054 | 5 15·1 | 345 31 36·1 | 0 46 27·9 | |
| 18 | 22 57 46·87 | 7 28 8·6 | ·3072667 | 5 11·3 | 345 32 14·8 | 0 46 27·9 | |
| 19 | 22 57 51·81 | 7 27 35·5 | ·3076262 | 5 7·4 | 345 32 53·5 | 0 46 27·9 | |
| 20 | 22 57 56·93 | 7 27 1·4 | ·3079839 | 5 3·6 | 345 33 32·3 | 0 46 27·8 | |
| 21 | 22 58 2·23 | 7 26 26·2 | ·3083397 | 4 59·8 | 345 34 11·0 | 0 46 27·8 | |
| 22 | 22 58 7·71 | 7 25 49·9 | ·3086934 | 4 55·9 | 345 34 49·8 | 0 46 27·8 | |
| 23 | 22 58 13·36 | 7 25 12·6 | ·3090449 | 4 52·1 | 345 35 28·5 | 0 46 27·8 | |
| 24 | 22 58 19·18 | 7 24 34·2 | ·3093943 | 4 48·3 | 345 36 7·1 | 0 46 27·8 | |
| 25 | 22 58 25·16 | 7 23 54·8 | ·3097414 | 4 44·4 | 345 36 45·7 | 0 46 27·7 | |
| 26 | 22 58 31·31 | 7 23 14·4 | ·3100861 | 4 40·6 | 345 37 24·3 | 0 46 27·7 | |
| 27 | 22 58 37·63 | 7 22 33·0 | ·3104283 | 4 36·8 | 345 38 2·8 | 0 46 27·7 | |
| 28 | 22 58 44·12 | 7 21 50·5 | ·3107678 | 4 33·0 | 345 38 41·4 | 0 46 27·7 | |
| 29 | 22 58 50·78 | 7 21 7·0 | ·3111047 | 4 29·1 | 345 39 20·0 | 0 46 27·7 | |
| 30 | 22 58 57·61 | 7 20 22·4 | ·3114389 | 4 25·3 | 345 39 58·6 | 0 46 27·6 | |
| 31 | 22 59 4·60 | 7 19 36·8 | ·3117702 | 4 21·5 | 345 40 37·2 | 0 46 27·6 | |
| 32 | 22 59 11·75 | S. 7 18 50·3 | 1·3120984 | 4 17·7 | 345 41 15·9 | S. 0 46 27·6 | 1 |

# DECEMBER, 1839.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 22 56 51 ·64 | + 0 ·07 | 0 ·13 | S. 7 34 32 ·9 | + 0 ·5 | 1 ·9 | 0 ·4 |
| 22 56 53 ·44 | 0 ·08 | 0 ·13 | 7 34 19 ·2 | 0 ·6 | 1 ·9 | 0 ·4 |
| 22 56 55 ·43 | 0 ·09 | 0 ·13 | 7 34 4 ·2 | 0 ·6 | 1 ·9 | 0 ·4 |
| 22 56 57 ·62 | 0 ·10 | 0 ·13 | 7 33 48 ·1 | 0 ·7 | 1 ·9 | 0 ·4 |
| 22 57 0 ·00 | 0 ·10 | 0 ·13 | 7 33 30 ·8 | 0 ·7 | 1 ·9 | 0 ·4 |
| 22 57 2 ·57 | 0 ·11 | 0 ·13 | 7 33 12 ·4 | 0 ·8 | 1 ·9 | 0 ·4 |
| 22 57 5 ·32 | 0 ·12 | 0 ·13 | 7 32 52 ·7 | 0 ·8 | 1 ·9 | 0 ·4 |
| 22 57 8 ·27 | 0 ·13 | 0 ·13 | 7 32 31 ·9 | 0 ·9 | 1 ·9 | 0 ·4 |
| 22 57 11 ·41 | 0 ·13 | 0 ·13 | 7 32 9 ·9 | 0 ·9 | 1 ·9 | 0 ·4 |
| 22 57 14 ·73 | 0 ·14 | 0 ·13 | 7 31 46 ·8 | 1 ·0 | 1 ·9 | 0 ·4 |
| 22 57 18 ·25 | 0 ·15 | 0 ·13 | 7 31 22 ·6 | 1 ·0 | 1 ·9 | 0 ·4 |
| 22 57 21 ·95 | 0 ·16 | 0 ·13 | 7 30 57 ·3 | 1 ·1 | 1 ·9 | 0 ·4 |
| 22 57 25 ·82 | 0 ·17 | 0 ·12 | 7 30 30 ·8 | 1 ·1 | 1 ·8 | 0 ·4 |
| 22 57 29 ·87 | 0 ·17 | 0 ·12 | 7 30 3 ·2 | 1 ·2 | 1 ·8 | 0 ·4 |
| 22 57 34 ·11 | 0 ·18 | 0 ·12 | 7 29 34 ·5 | 1 ·2 | 1 ·8 | 0 ·4 |
| 22 57 38 ·53 | 0 ·19 | 0 ·12 | 7 29 4 ·7 | 1 ·3 | 1 ·8 | 0 ·4 |
| 22 57 43 ·13 | 0 ·19 | 0 ·12 | 7 28 33 ·7 | 1 ·3 | 1 ·8 | 0 ·4 |
| 22 57 47 ·92 | 0 ·20 | 0 ·12 | 7 28 1 ·6 | 1 ·4 | 1 ·8 | 0 ·4 |
| 22 57 52 ·89 | 0 ·21 | 0 ·12 | 7 27 28 ·4 | 1 ·4 | 1 ·8 | 0 ·4 |
| 22 57 58 ·04 | 0 ·22 | 0 ·12 | 7 26 54 ·1 | 1 ·5 | 1 ·8 | 0 ·4 |
| 22 58 3 ·36 | 0 ·23 | 0 ·12 | 7 26 18 ·8 | 1 ·5 | 1 ·8 | 0 ·4 |
| 22 58 8 ·86 | 0 ·23 | 0 ·12 | 7 25 42 ·4 | 1 ·5 | 1 ·8 | 0 ·4 |
| 22 58 14 ·53 | 0 ·24 | 0 ·12 | 7 25 4 ·9 | 1 ·6 | 1 ·8 | 0 ·4 |
| 22 58 20 ·36 | 0 ·25 | 0 ·12 | 7 24 26 ·4 | 1 ·6 | 1 ·8 | 0 ·4 |
| 22 58 26 ·36 | 0 ·25 | 0 ·12 | 7 23 46 ·9 | 1 ·7 | 1 ·8 | 0 ·4 |
| 22 58 32 ·53 | 0 ·26 | 0 ·12 | 7 23 6 ·4 | 1 ·7 | 1 ·8 | 0 ·4 |
| 22 58 38 ·87 | 0 ·27 | 0 ·12 | 7 22 24 ·9 | 1 ·8 | 1 ·8 | 0 ·4 |
| 22 58 45 ·37 | 0 ·27 | 0 ·12 | 7 21 42 ·4 | 1 ·8 | 1 ·8 | 0 ·4 |
| 22 58 52 ·05 | 0 ·28 | 0 ·12 | 7 20 58 ·8 | 1 ·8 | 1 ·8 | 0 ·4 |
| 22 58 58 ·89 | 0 ·29 | 0 ·12 | 7 20 14 ·1 | 1 ·9 | 1 ·8 | 0 ·4 |
| 22 59 5 ·89 | 0 ·30 | 0 ·12 | 7 19 28 ·5 | 1 ·9 | 1 ·8 | 0 ·4 |
| 22 59 13 ·05 | + 0 ·30 | 0 ·12 | S. 7 18 41 ·9 | + 2 ·0 | 1 ·8 | 0 ·4 |

## MEAN PLACES OF 100 PRINCIPAL FIXED STARS, FOR JANUARY 1, 1839.

| Star's Name. | Mag. | Right Ascension. | Annual Var. | Declination. | Annual |
|---|---|---|---|---|---|
| | | h m s | s | ° ′ ″ | ″ |
| α ANDROMEDÆ - - - | 1 | 0 0 4·648 | + 3·0707 | N.28 12 7·01 | +20·[illegible] |
| γ PEGASI (*Algenib*) | 2.3 | 0 4 57·235 | 3·0777 | N.14 17 18·77 | 20·[illegible] |
| β Hydri - - - - - - | 3 | 0 17 11·003 | 3·3122* | S.78 9 44·39 | 20·[illegible] |
| α CASSIOPEÆ - - - - | 3 | 0 31 24·627 | 3·3380 | N.55 39 12·14 | 19·[illegible] |
| β Ceti - - - - - - - | 2.3 | 0 35 30·341 | + 2·9999 | S.18 52 14·53 | +19·[illegible] |
| α URS. MIN. (*Polaris*) | 2.3 | 1 1 54·286 | 16·3983* | N.88 27 2·61 | 19·[illegible] |
| θ¹ Ceti - - - - - - - | 3 | 1 15 58·812 | 3·0014 | S. 9 0 54·87 | 18·[illegible] |
| α Eridani (*Achernar*) | 1 | 1 31 42·650 | 2·2349 | S.58 3 23·60 | 18·[illegible] |
| α ARIETIS - - - - - | 3 | 1 58 6·596 | + 3·3461 | N.22 41 54·36 | +17·[illegible] |
| γ Ceti - - - - - - - | 3 | 2 34 58·076 | 3·1078 | N. 2 33 15·20 | 15·[illegible] |
| α CETI - - - - - - - | 2.3 | 2 53 52·219 | 3·1259 | N. 3 27 15·53 | 14·[illegible] |
| α PERSEI - - - - - | 2.3 | 3 12 51·739 | 4·2290 | N.49 16 55·36 | 13·[illegible] |
| η Tauri - - - - - - | 3 | 3 37 55·496 | + 3·5460 | N.23 36 7·64 | +11·[illegible] |
| γ¹ Eridani - - - - - | 2.3 | 3 50 31·223 | 2·7895 | S.13 58 13·82 | 10·[illegible] |
| α TAURI (*Aldebaran*) | 1 | 4 26 41·345 | 3·4266 | N.16 10 48·86 | 7·[illegible] |
| α AURIGÆ (*Capella*) | 1 | 5 4 48·264 | 4·4069 | N.45 49 38·01 | 4·[illegible] |
| β ORIONIS (*Rigel*) | 1 | 5 6 48·214 | + 2·8784 | S. 8 23 33·91 | + 4·[illegible] |
| β TAURI - - - - - - | 2 | 5 16 7·175 | 3·7821 | N.28 27 54·37 | 3·[illegible] |
| δ ORIONIS - - - - - | 2 | 5 23 47·113 | 3·0606 | S. 0 25 26·32 | 3·[illegible] |
| α Leporis - - - - - | 3.4 | 5 25 37·919 | 2·6423 | S.17 56 32·28 | 2·[illegible] |
| ε ORIONIS - - - - - | 2.3 | 5 28 2·820 | + 3·0402 | S. 1 18 36·94 | + 2·[illegible] |
| α Columbæ - - - - | 2 | 5 33 49·349 | 2·1689 | S.34 9 49·70 | 2·[illegible] |
| α ORIONIS - - - - - | 1 | 5 46 27·466 | 3·2431 | N. 7 22 15·95 | + 1·[illegible] |
| μ Geminorum - - - - | 3 | 6 13 13·191 | 3·6257 | N.22 35 23·51 | — 1·[illegible] |
| α Argus - (*Canopus*) | 1 | 6 20 22·850 | + 1·3278 | S.52 36 36·65 | — 1·[illegible] |
| 51 (Hev.) Cephei - - | 6 | 6 22 54·350 | 30·8865 | N.87 15 44·51 | 2·[illegible] |
| α CANIS MAJ. (*Sirius*) | 1 | 6 38 3·112 | 2·6458* | S.16 30 0·34 | 4·[illegible] |
| ε Canis Majoris - - - | 2.3 | 6 52 18·030 | 2·3556 | S.28 45 26·10 | 4·[illegible] |
| δ Geminorum - - - - | 3.4 | 7 10 30·233 | + 3·5922 | N.22 16 20·84 | — 6·[illegible] |
| α² GEMINOR. (*Castor*) | 3 | 7 24 19·209 | 3·8570 | N.32 14 6·09 | 7·[illegible] |
| α CAN. MIN. (*Procyon*) | 1.2 | 7 30 52·384 | 3·1447* | N. 5 37 57·64 | 8·[illegible] |
| β GEMINOR. (*Pollux*) | 2 | 7 35 27·389 | 3·6837* | N.28 24 33·67 | 8·[illegible] |
| 15 Argus - - - - - - | 3.4 | 8 0 41·425 | + 2·5595 | S.23 50 37·99 | —10·[illegible] |
| ε Hydræ - - - - - - | 4 | 8 38 14·937 | 3·1970 | N. 7 0 19·38 | 12·[illegible] |
| ι Ursæ Majoris - - - | 3.4 | 8 48 8·993 | 4·1292* | N.48 40 7·91 | 13·[illegible] |
| ι Argus - - - - - - | 2 | 9 12 46·922 | 1·6101 | S.58 36 5·09 | 14·[illegible] |
| α HYDRÆ - - - - - | 2 | 9 19 40·620 | + 2·9500 | S. 7 57 49·50 | —15·[illegible] |
| θ Ursæ Majoris - - - | 3 | 9 22 3·065 | 4·0543* | N.52 24 23·64 | 16·[illegible] |
| ε Leonis - - - - - - | 3 | 9 36 42·172 | 3·4271 | N.24 30 44·76 | 16·[illegible] |
| α LEONIS (*Regulus*) | 1 | 9 59 47·711 | + 3·2218 | N.12 45 7·05 | —17·[illegible] |

## EAN PLACES OF 100 PRINCIPAL FIXED STARS, FOR JANUARY 1, 1839.

| Name. | Mag. | Right Ascension. | Annual Var. | Declination. | Annual Var. |
|---|---|---|---|---|---|
| | | h m s | s | ° ′ ″ | ″ |
| - - - - | 2 | 10 38 50 ·093 | + 2 ·3036 | S. 58 50 22 ·56 | —18 ·812 |
| JORIS - - | 1.2 | 10 53 44 ·172 | 3 ·8060 | N. 62 37 8 ·15 | 19 ·224 |
| - - - - | 3 | 11 5 32 ·140 | 3 ·1937 | N. 21 24 19 ·81 | 19 ·493 |
| Crateris - | 3.4 | 11 11 17 ·823 | 3 ·0006 | S. 13 54 28 ·61 | 19 ·605 |
| - - - - | 2.3 | 11 40 50 ·636 | + 3 ·0659* | N. 15 28 21 ·14 | —19 ·986 |
| JORIS - - | 2 | 11 45 19 ·744 | 3 ·1905 | N. 54 35 24 ·68 | 20 ·015 |
| ntis - - - | 5 | 12 9 3 ·554 | 3 ·3290 | S. 78 25 5 ·87 | 20 ·040 |
| - - - - | 1 | 12 17 42 ·038 | 3 ·2664 | S. 62 12 19 ·78 | 19 ·996 |
| - - - - | 2.3 | 12 25 56 ·570 | + 3 ·1330 | S. 22 30 15 ·97 | —19 ·927 |
| naticorum | 2.3 | 12 48 29 ·470 | 2 ·8414 | N. 39 11 21 ·78 | 19 ·608 |
| (*Spica*) | 1 | 13 16 43 ·208 | 3 ·1504 | S. 10 19 5 ·45 | 18 ·942 |
| JORIS - - | 2.3 | 13 41 11 ·154 | 2 ·3532* | N. 50 7 9 ·44 | 18 ·132 |
| - - - - | 3 | 13 47 1 ·286 | + 2 ·8606 | N. 19 12 31 ·24 | —17 ·908 |
| - - - - | 1 | 13 52 31 ·767 | 4 ·1450 | S. 59 35 30 ·20 | 17 ·685 |
| *Arcturus*) | 1 | 14 8 19 ·232 | 2 ·7335* | N. 20 1 26 ·63 | 18 ·952* |
| - - - - | 1 | 14 28 43 ·834 | 4 ·0104* | S. 60 9 51 ·08 | 15 ·144* |
| - - - - | 3 | 14 37 57 ·376 | + 2 ·6229 | N. 27 45 24 ·20 | —15 ·477 |
| - - - - | 3 | 14 41 59 ·135 | + 3 ·3091 | S. 15 22 2 ·99 | 15 ·250 |
| NORIS - - | 3 | 14 51 14 ·943 | — 0 ·2766 | N. 74 48 48 ·89 | 14 ·713 |
| - - - - | 2.3 | 15 8 21 ·200 | + 3 ·2217 | S. 8 47 1 ·54 | 13 ·654 |
| BOREALIS | 2 | 15 27 52 ·339 | + 2 ·5277 | N. 27 15 40 ·07 | —12 ·355 |
| s - - - - | 2.3 | 15 36 20 ·495 | + 2 ·9387 | N. 6 56 14 ·58 | 11 ·763 |
| oris - - - | 4 | 15 49 57 ·457 | — 2 ·3666 | N. 78 17 10 ·90 | 10 ·781 |
| - - - - | 2 | 15 56 5 ·212 | + 3 ·4732 | S. 19 21 28 ·49 | 10 ·321 |
| - - - - | 3 | 16 5 54 ·895 | + 3 ·1376 | S. 3 16 24 ·25 | — 9 ·574 |
| (*Antares*) | 1 | 16 19 32 ·828 | 3 ·6628 | S. 26 4 4 ·60 | 8 ·509 |
| - - - - | 3 | 16 21 49 ·293 | 0 ·7946 | N. 61 52 47 ·88 | 8 ·331 |
| Australis | 2 | 16 31 41 ·306 | + 6 ·2521 | S. 68 43 12 ·19 | 7 ·534 |
| oris - - - | 4 | 17 2 41 ·799 | — 6 ·5533* | N. 82 17 27 ·32 | — 4 ·967 |
| - - - - | 3.4 | 17 7 18 ·564 | + 2 ·7318 | N. 14 34 46 ·01 | 4 ·568 |
| - - - - | 6 | 17 10 35 ·425 | 104 ·6924 | S. 89 15 43 ·95 | 4 ·214 |
| - - - - | 2 | 17 26 47 ·946 | 1 ·3509 | N. 52 25 23 ·66 | 2 ·894 |
| - - - - | 2 | 17 27 27 ·791 | + 2 ·7725 | N. 12 41 1 ·50 | — 2 ·836 |
| - - - - | 2 | 17 52 52 ·276 | 1 ·3897 | N. 51 30 37 ·70 | — 0 ·623 |
| - - - - | 3.4 | 18 4 8 ·314 | + 3 ·5860 | S. 21 5 33 ·95 | + 0 ·365 |
| NORIS - - | 3 | 18 24 15 ·676 | — 19 ·2214* | N. 86 35 26 ·70 | 2 ·105 |
| - (*Vega*) | 1 | 18 31 29 ·174 | + 2 ·0117 | N. 38 38 14 ·10 | + 2 ·748 |
| - - - - | 3 | 18 44 8 ·280 | 2 ·2123 | N. 33 10 48 ·52 | 3 ·840 |
| - - - - | 3 | 18 58 0 ·689 | 2 ·7565 | N. 13 37 48 ·15 | 5 ·024 |
| - - - - | 3.4 | 19 17 22 ·689 | + 3 ·0087 | N. 2 47 58 ·42 | + 6 ·645 |

## MEAN PLACES OF 100 PRINCIPAL FIXED STARS, FOR JANUARY 1, 1839.

| Star's Name. | Mag. | Right Ascension. | Annual Var. | Declination. | Annual Var. |
|---|---|---|---|---|---|
| | | h m s | s | ° ′ ″ | ″ |
| γ Aquilæ - - - - - | 3 | 19 38 36·360 | + 2·8511 | N.10 13 34·54 | + 8·367 |
| α Aquilæ - (*Altair*) | 1.2 | 19 42 55·690 | 2·9255* | N. 8 26 51·51 | 8·709 |
| β Aquilæ - - - - - | 3.4 | 19 47 24·333 | 2·9447 | N. 6 0 35·92 | 8·521* |
| $\alpha^2$ Capricorni - - - | 3 | 20 9 7·013 | 3·3321 | S. 13 2 16·27 | 10·713 |
| α Pavonis - - - - - | 2 | 20 12 52·165 | + 4·8087 | S. 57 14 36·55 | +10·990 |
| λ Ursæ Minoris - - - | 5 | 20 22 28·379 | —50·1020 | N.88 49 32·76 | 11·651 |
| α Cygni - - - - - - | 1 | 20 35 56·734 | + 2·0416 | N.44 42 28·77 | 12·619 |
| $61^1$ Cygni - - - - - - | 5.6 | 20 59 41·613 | 2·6905* | N.37 57 42·64 | 17·460* |
| ζ Cygni - - - - - - | 3 | 21 6 5·284 | + 2·5484 | N.29 34 12·98 | +14·555 |
| α Cephei - - - - - | 3 | 21 14 43·734 | 1·4168 | N.61 54 17·92 | 15·064 |
| β Aquarii - - - - - | 3 | 21 23 4·753 | 3·1633 | S. 6 16 31·20 | 15·537 |
| β Cephei - - - - - | 3 | 21 26 33·399 | 0·8082 | N.69 51 17·51 | 15·727 |
| ε Pegasi - - - - - - | 2.3 | 21 36 16·778 | + 2·9442 | N. 9 8 25·56 | +16·241 |
| α Aquarii - - - - - | 3 | 21 57 30·843 | 3·0834 | S. 1 5 55·26 | 17·260 |
| α Gruis - - - - - - | 2 | 21 58 3·130 | 3·8166 | S.47 44 13·46 | 17·284 |
| ζ Pegasi - - - - - - | 3 | 22 33 26·021 | 2·9835 | N. 9 59 35·22 | 18·643 |
| α Pis. Aus. (*Fomalhaut*) | 1 | 22 48 44·358 | + 3·3110 | S.30 28 24·01 | +19·095 |
| α Pegasi (*Markab*) | 2 | 22 56 44·773 | 2·9772 | N.14 20 27·63 | 19·297 |
| ι Piscium - - - - - | 4.5 | 23 31 40·209 | 3·0567 | N. 4 45 15·56 | 19·353* |
| γ Cephei - - - - - | 3 | 23 32 48·051 | + 2·3992 | N.76 44 1·92 | +19·915 |

Those Annual Variations which include proper motion are distinguished by an Asterisk.

# FORMULÆ OF REDUCTION,

ACCORDING TO PROFESSOR BESSEL.

1.—*Adopting the Notation and Coefficients employed by Mr. Baily, in his Introduction to the New Tables of the Astronomical Society of London.*

$$A = -18''\cdot6768 \cos \odot$$

$$B = -20''\cdot3600 \sin \odot$$

$$C = t - 0\cdot02495 \sin 2\odot - 0\cdot34362 \sin \Omega + 0\cdot00413 \sin 2\Omega - 0\cdot004 \sin 2 ☾$$

$$D = -0''\cdot54470 \cos 2\odot - 9''\cdot25000 \cos \Omega + 0''\cdot09030 \cos 2\Omega - 0''\cdot090 \cos 2 ☾$$

$$a = \cos \alpha \sec \delta$$

$$b = \sin \alpha \sec \delta$$

$$c = 46''\cdot0206 + 20''\cdot0426 \sin \alpha \tan \delta$$

$$d = \cos \alpha \tan \delta$$

$$a' = \tan \omega \cos \delta - \sin \alpha \sin \delta$$

$$b' = \cos \alpha \sin \delta$$

$$c' = 20''\cdot0426 \cos \alpha$$

$$d' = -\sin \alpha$$

$\Delta c =$ the annual proper motion in Right Ascension, *in arc.*

$\Delta c' =$ the annual proper motion in Declination.

Where $t$ denotes the time from the beginning of the year, expressed in fractional parts of a year, $\odot$ the Sun's and ☾ the Moon's true longitude, $\Omega$ the mean longitude of the Moon's node, and $\omega$ the obliquity of the Ecliptic, each for the time $t$: $\alpha$ the mean Right Ascension, *in arc*, and $\delta$ the mean Declination for the beginning of the year. Then, for the time represented by $t$,

Apparent R.A., *in arc*, $= \alpha + A a + B b + C c + D d + t \Delta c.$

Apparent Dec. - - - $= \delta + A a' + B b' + C c' + D d' + t \Delta c'.$

2.—*Using the same Notation and Coefficients, and assuming*

$$46''\cdot0206\, C = f \qquad B = h \cos H$$

$$20\cdot0426\, C = g \cos G \qquad A = h \sin H$$

$$D = g \sin G \qquad A \tan \omega = i$$

Apparent R.A., *in arc*, $= \alpha + f + t \Delta c$
$+ g \sin (G + \alpha) \tan \delta + h \sin (H + \alpha) \sec \delta$

Apparent Dec. - - - $= \delta + i \cos \delta + t \Delta c'$
$+ g \cos (G + \alpha) + h \cos (H + \alpha) \sin \delta$

## CONSTANTS FOR FACILITATING THE REDUCTION OF STARS.

| Day of the Month. | At Greenwich Mean Midnight. | | | | | |
|---|---|---|---|---|---|---|
| | *f* | *g* | *G* | *h* | *H* | *i* |
| | ″ | ″ | ° ′ | ″ | ° ′ | ″ |
| Jan. 1 | + 0·79 | + 8·66 | 272 16 | +20·30 | 349 55 | − 1·53 |
| 6 | 1·67 | 8·73 | 274 47 | 20·24 | 345 12 | 2·24 |
| 11 | 2·53 | 8·82 | 277 11 | 20·15 | 340 27 | 2·93 |
| 16 | 3·37 | 8·94 | 279 27 | 20·04 | 335 39 | 3·59 |
| 21 | + 4·18 | + 9·09 | 281 34 | +19·92 | 330 48 | − 4·22 |
| 26 | 4·96 | 9·25 | 283 31 | 19·78 | 325 54 | 4·81 |
| 31 | 5·70 | 9·42 | 285 18 | 19·64 | 320 56 | 5·37 |
| Feb. 5 | 6·41 | 9·59 | 286 56 | 19·49 | 315 54 | 5·89 |
| 10 | + 7·09 | + 9·77 | 288 25 | +19·34 | 310 48 | − 6·36 |
| 15 | 7·73 | 9·95 | 289 46 | 19·20 | 305 37 | 6·77 |
| 20 | 8·33 | 10·11 | 291 1 | 19·07 | 300 23 | 7·14 |
| 25 | 8·90 | 10·27 | 292 11 | 18·95 | 295 6 | 7·45 |
| Mar. 2 | + 9·45 | +10·42 | 293 16 | +18·85 | 289 45 | − 7·70 |
| 7 | 9·98 | 10·56 | 294 19 | 18·77 | 284 23 | 7·89 |
| 12 | 10·50 | 10·68 | 295 21 | 18·71 | 278 59 | 8·02 |
| 17 | 11·01 | 10·79 | 296 22 | 18·68 | 273 34 | 8·09 |
| 22 | +11·51 | +10·89 | 297 24 | +18·68 | 268 9 | − 8·10 |
| 27 | 12·01 | 10·97 | 298 28 | 18·70 | 262 46 | 8·05 |
| April 1 | 12·53 | 11·05 | 299 34 | 18·75 | 257 25 | 7·94 |
| 6 | 13·05 | 11·13 | 300 43 | 18·82 | 252 7 | 7·77 |
| 11 | +13·60 | +11·20 | 301 56 | +18·91 | 246 52 | − 7·55 |
| 16 | 14·17 | 11·27 | 303 12 | 19·02 | 241 42 | 7·27 |
| 21 | 14·77 | 11·35 | 304 31 | 19·14 | 236 36 | 6·94 |
| 26 | 15·39 | 11·43 | 305 54 | 19·28 | 231 35 | 6·56 |
| May 1 | +16·05 | +11·52 | 307 20 | +19·42 | 226 40 | − 6·13 |
| 6 | 16·74 | 11·63 | 308 48 | 19·56 | 221 49 | 5·66 |
| 11 | 17·46 | 11·76 | 310 17 | 19·70 | 217 3 | 5·15 |
| 16 | 18·21 | 11·90 | 311 47 | 19·83 | 212 21 | 4·61 |
| 21 | +19·00 | +12·07 | 313 16 | +19·96 | 207 44 | − 4·03 |
| 26 | 19·81 | 12·26 | 314 44 | 20·07 | 203 11 | 3·43 |
| 31 | 20·64 | 12·47 | 316 10 | 20·17 | 198 41 | 2·80 |
| June 5 | 21·50 | 12·70 | 317 31 | 20·25 | 194 13 | 2·16 |
| 10 | +22·37 | +12·95 | 318 48 | +20·30 | 189 48 | − 1·50 |
| 15 | 23·25 | 13·22 | 320 0 | 20·34 | 185 24 | 0·83 |
| 20 | 24·14 | 13·51 | 321 7 | 20·36 | 181 1 | − 0·16 |
| 25 | 25·04 | 13·81 | 322 9 | 20·35 | 176 39 | + 0·52 |
| 30 | 25·92 | 14·12 | 323 4 | 20·32 | 172 16 | 1·19 |
| July 5 | +26·80 | +14·44 | 323 54 | +20·27 | 167 52 | + 1·85 |

## CONSTANTS FOR FACILITATING THE REDUCTION OF STARS.

| Day of the Month. | At Greenwich Mean Midnight. | | | | | |
|---|---|---|---|---|---|---|
| | *f* | *g* | *G* | *h* | *H* | *i* |
| | ″ | ″ | ° ′ | ″ | ° ′ | ″ |
| July 5 | +26·80 | +14·44 | 323 54 | +20·27 | 167 52 | + 1·85 |
| 10 | 27·66 | 14·77 | 324 38 | 20·21 | 163 27 | 2·50 |
| 15 | 28·51 | 15·10 | 325 17 | 20·12 | 158 59 | 3·13 |
| 20 | 29·33 | 15·43 | 325 51 | 20·01 | 154 29 | 3·74 |
| 25 | +30·13 | +15·76 | 326 21 | +19·90 | 149 55 | + 4·33 |
| 30 | 30·89 | 16·08 | 326 47 | 19·77 | 145 18 | 4·88 |
| Aug. 4 | 31·63 | 16·39 | 327 10 | 19·63 | 140 36 | 5·40 |
| 9 | 32·33 | 16·70 | 327 30 | 19·49 | 135 50 | 5·89 |
| 14 | +33·01 | +16·99 | 327 48 | +19·35 | 131 0 | + 6·34 |
| 19 | 33·65 | 17·27 | 328 4 | 19·21 | 126 4 | 6·74 |
| 24 | 34·26 | 17·53 | 328 20 | 19·08 | 121 4 | 7·09 |
| 29 | 34·84 | 17·78 | 328 35 | 18·97 | 116 0 | 7·40 |
| Sept. 3 | +35·40 | +18·02 | 328 51 | +18·87 | 110 51 | + 7·65 |
| 8 | 35·94 | 18·24 | 329 7 | 18·78 | 105 38 | 7·85 |
| 13 | 36·46 | 18·45 | 329 24 | 18·72 | 100 22 | 8·00 |
| 18 | 36·97 | 18·64 | 329 43 | 18·69 | 95 4 | 8·08 |
| 23 | +37·47 | +18·83 | 330 4 | +18·68 | 89 44 | + 8·11 |
| 28 | 37·98 | 19·01 | 330 27 | 18·69 | 84 23 | 8·07 |
| Oct. 3 | 38·49 | 19·19 | 330 52 | 18·73 | 79 2 | 7·98 |
| 8 | 39·01 | 19·36 | 331 19 | 18·79 | 73 42 | 7·83 |
| 13 | +39·54 | +19·53 | 331 49 | +18·88 | 68 24 | + 7·62 |
| 18 | 40·10 | 19·71 | 332 21 | 18·99 | 63 7 | 7·35 |
| 23 | 40·68 | 19·90 | 332 55 | 19·11 | 57 54 | 7·03 |
| 28 | 41·30 | 20·09 | 333 31 | 19·25 | 52 45 | 6·65 |
| Nov. 2 | +41·94 | +20·30 | 334 8 | +19·39 | 47 39 | + 6·22 |
| 7 | 42·62 | 20·52 | 334 46 | 19·54 | 42 36 | 5·74 |
| 12 | 43·34 | 20·76 | 335 24 | 19·68 | 37 37 | 5·21 |
| 17 | 44·09 | 21·01 | 336 2 | 19·82 | 32 42 | 4·65 |
| 22 | +44·87 | +21·28 | 336 39 | +19·95 | 27 51 | + 4·05 |
| 27 | 45·69 | 21·57 | 337 15 | 20·07 | 23 3 | 3·41 |
| Dec. 2 | 46·53 | 21·88 | 337 49 | 20·17 | 18 17 | 2·75 |
| 7 | 47·39 | 22·21 | 338 21 | 20·25 | 13 34 | 2·06 |
| 12 | +48·27 | +22·55 | 338 50 | +20·31 | 8 52 | + 1·36 |
| 17 | 49·17 | 22·90 | 339 16 | 20·35 | 4 11 | + 0·64 |
| 22 | 50·07 | 23·26 | 339 40 | 20·36 | 359 30 | − 0·08 |
| 27 | 50·97 | 23·62 | 340 0 | 20·34 | 354 50 | 0 80 |
| 32 | +51·86 | +23·99 | 340 17 | +20·30 | 350 9 | − 1 51 |

## APPARENT PLACES OF α AND δ URSÆ MINORIS, FOR THE UPPER TRANSIT AT GREENWICH.

| JANUARY. | | | | | FEBRUARY. | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Day of the Month. | α URSÆ MINOR. (*Polaris*) | | δ URSÆ MINOR. | | Day of the Month. | α URSÆ MINOR. (*Polaris*) | | δ URSÆ MINOR. | |
| | R. A. | Dec. N. | R. A. | Dec. N. | | R. A. | Dec. N. | R. A. | Dec. N. |
| | h m 1 1 | ° ′ 88 27 | h m 18 23 | ° ′ 86 35 | | h m 1 0 | ° ′ 88 27 | h m 18 23 | ° ′ 86 35 |
| | s | ″ | s | ″ | | s | ″ | s | ″ |
| 1 | 38·95 | 25·4 | 51·64 | 16·5 | 1 | 74·84 | 25·2 | 54·01 | 6·5 |
| 2 | 38·15 | 25·5 | 51·60 | 16·1 | 2 | 74·11 | 25·1 | 54·20 | 6·2 |
| 3 | 37·36 | 25·5 | 51·57 | 15·8 | 3 | 73·39 | 25·0 | 54·40 | 5·9 |
| 4 | 36·57 | 25·6 | 51·54 | 15·4 | 4 | 72·67 | 24·9 | 54·60 | 5·6 |
| 5 | 35·79 | 25·7 | 51·53 | 15·1 | 5 | 71·96 | 24·7 | 54·80 | 5·4 |
| 6 | 35·01 | 25·7 | 51·53 | 14·7 | 6 | 71·26 | 24·6 | 55·00 | 5·2 |
| 7 | 34·23 | 25·8 | 51·54 | 14·4 | 7 | 70·56 | 24·5 | 55·21 | 4·9 |
| 8 | 33·45 | 25·8 | 51·55 | 14·0 | 8 | 69·87 | 24·3 | 55·44 | 4·6 |
| 9 | 32·67 | 25·9 | 51·57 | 13·7 | 9 | 69·19 | 24·2 | 55·67 | 4·4 |
| 10 | 31·88 | 26·0 | 51·60 | 13·4 | 10 | 68·52 | 24·0 | 55·90 | 4·1 |
| 11 | 31·08 | 26·0 | 51·63 | 13·1 | 11 | 67·86 | 23·9 | 56·14 | 3·9 |
| 12 | 30·28 | 26·1 | 51·67 | 12·7 | 12 | 67·21 | 23·7 | 56·38 | 3·6 |
| 13 | 29·49 | 26·1 | 51·72 | 12·4 | 13 | 66·56 | 23·6 | 56·62 | 3·3 |
| 14 | 28·70 | 26·1 | 51·78 | 12·1 | 14 | 65·92 | 23·4 | 56·87 | 3·1 |
| 15 | 27·91 | 26·1 | 51·85 | 11·8 | 15 | 65·28 | 23·2 | 57·12 | 2·9 |
| 16 | 27·13 | 26·1 | 51·92 | 11·5 | 16 | 64·66 | 23·0 | 57·38 | 2·7 |
| 17 | 26·34 | 26·1 | 52·00 | 11·2 | 17 | 64·05 | 22·8 | 57·65 | 2·5 |
| 18 | 25·54 | 26·0 | 52·09 | 10·8 | 18 | 63·45 | 22·6 | 57·93 | 2·3 |
| 19 | 24·75 | 26·0 | 52·18 | 10·5 | 19 | 62·86 | 22·4 | 58·21 | 2·1 |
| 20 | 23·97 | 26·0 | 52·28 | 10·2 | 20 | 62·28 | 22·2 | 58·49 | 1·9 |
| 21 | 23·20 | 25·9 | 52·39 | 9·8 | 21 | 61·70 | 22·0 | 58·77 | 1·7 |
| 22 | 22·43 | 25·9 | 52·50 | 9·5 | 22 | 61·14 | 21·8 | 59·06 | 1·5 |
| 23 | 21·65 | 25·9 | 52·63 | 9·2 | 23 | 60·60 | 21·6 | 59·35 | 1·3 |
| 24 | 20·88 | 25·8 | 52·76 | 8·9 | 24 | 60·07 | 21·3 | 59·64 | 1·1 |
| 25 | 20·11 | 25·8 | 52·90 | 8·6 | 25 | 59·55 | 21·1 | 59·94 | 0·9 |
| 26 | 19·34 | 25·7 | 53·04 | 8·3 | 26 | 59·04 | 20·9 | 60·24 | 0 |
| 27 | 18·58 | 25·7 | 53·19 | 8·0 | 27 | 58·53 | 20·6 | 60·55 | 0 |
| | | | | | 28 | 58·04 | 20·4 | 60·86 | 0 |
| 28 | 17·82 | 25·6 | 53·34 | 7·7 | | | | | |
| 29 | 17·07 | 25·5 | 53·50 | 7·4 | 29 | 57·57 | 20·1 | 61·17 | 0 |
| 30 | 16·32 | 25·4 | 53·66 | 7·1 | | | | | |
| 31 | 15·58 | 25·3 | 53·83 | 6·8 | | | | | |
| 32 | 14·84 | 25·2 | 54·01 | 6·5 | | | | | |

## APPARENT PLACES OF α AND δ URSÆ MINORIS,

### FOR THE UPPER TRANSIT AT GREENWICH.

| MARCH. | | | | APRIL. | | | | |
|---|---|---|---|---|---|---|---|---|
| URSÆ MINOR. (*Polaris*) | | δ URSÆ MINOR. | | Day of the Month. | α URSÆ MINOR. (*Polaris*) | | δ URSÆ MINOR. | |
| .. | Dec. N. | R. A. | Dec. N. | | R. A. | Dec. N. | R. A. | Dec. N. |
| m | ° ′ | h m | ° ′ | | h m | ° ′ | h m | ° ′ |
| 0 | 88 27 | 18 24 | 86 34 | | 1 0 | 88 27 | 18 24 | 86 34 |
| | ″ | s | ″ | | s | ″ | s | ″ |
| 7 | 20·1 | 1·17 | 60·3 | 1 | 49·70 | 11·3 | 11·79 | 58·7 |
| 2 | 19·9 | 1·49 | 60·2 | 2 | 49·68 | 11·0 | 12·14 | 58·7 |
| 7 | 19·7 | 1·81 | 60·0 | 3 | 49·69 | 10·7 | 12·48 | 58·7 |
| 3 | 19·4 | 2·13 | 59·9 | 4 | 49·72 | 10·4 | 12·82 | 58·8 |
| 0 | 19·1 | 2·46 | 59·8 | 5 | 49·76 | 10·1 | 13·16 | 58·8 |
| 8 | 18·8 | 2·79 | 59·7 | 6 | 49·81 | 9·8 | 13·50 | 58·9 |
| 8 | 18·6 | 3·12 | 59·5 | 7 | {49·89 / 49·96} | {9·5 / 9·2} | 13·84 | 59·0 |
| 0 | 18·3 | 3·46 | 59·4 | 8 | 50·04 | 8·9 | 14·18 | 59·1 |
| 4 | 18·0 | 3·79 | 59·3 | 9 | 50·12 | 8·6 | 14·52 | 59·2 |
| 9 | 17·8 | 4·13 | 59·2 | 10 | 50·22 | 8·3 | 14·85 | 59·3 |
| 5 | 17·5 | 4·47 | 59·1 | 11 | 50·34 | 8·0 | 15·18 | 59·4 |
| 2 | 17·3 | 4·81 | 59·0 | 12 | 50·48 | 7·7 | 15·51 | 59·5 |
| 0 | 17·0 | 5·15 | 58·9 | 13 | 50·64 | 7·4 | 15·83 | 59·6 |
| 9 | 16·7 | 5·50 | 58·9 | 14 | 50·81 | 7·1 | 16·15 | 59·7 |
| 0 | 16·4 | 5·85 | 58·8 | 15 | 51·00 | 6·8 | 16·47 | 59·9 |
| 3 | 16·1 | 6·20 | 58·8 | 16 | 51·22 | 6·5 | 16·79 | 60·0 |
| 7 | 15·8 | 6·55 | 58·7 | 17 | 51·45 | 6·3 | 17·10 | 60·1 |
| 3 | 15·5 | 6·90 | 58·7 | 18 | 51·68 | 6·0 | 17·41 | 60·2 |
| 0 | 15·2 | 7·25 | 58·6 | 19 | 51·93 | 5·7 | 17·71 | 60·4 |
| 9 | 14·9 | 7·59 | 58·6 | 20 | 52·20 | 5·4 | 18·02 | 60·5 |
| 9 | 14·6 | 7·94 | 58·5 | 21 | 52·48 | 5·1 | 18·32 | 60·7 |
| 1 | 14·3 | 8·29 | 58·5 | 22 | 52·77 | 4·8 | 18·62 | 60·9 |
| 4 | 14·0 | 8·64 | 58·5 | 23 | 53·07 | 4·6 | 18·92 | 61·0 |
| 8 | 13·7 | 8·99 | 58·5 | 24 | 53·38 | 4·3 | 19·21 | 61·2 |
| 4 | 13·4 | 9·35 | 58·5 | 25 | 53·71 | 4·0 | 19·50 | 61·4 |
| 1 | 13·1 | 9·70 | 58·5 | 26 | 54·06 | 3·7 | 19·78 | 61·6 |
| 0 | 12·8 | 10·05 | 58·5 | 27 | 54·42 | 3·5 | 20·05 | 61·8 |
| 1 | 12·5 | 10·40 | 58·6 | 28 | 54·79 | 3·2 | 20·32 | 62·0 |
| 4 | 12·2 | 10·75 | 58·6 | 29 | 55·18 | 2·9 | 20·59 | 62·2 |
| 8 | 11·9 | 11·10 | 58·6 | 30 | 55·58 | 2·7 | 20·86 | 62·4 |
| 3 | 11·6 | 11·45 | 58·6 | | | | | |
| | | | | 31 | 55·99 | 2·5 | 21·13 | 62·6 |
| 0 | 11·3 | 11·79 | 58·7 | | | | | |

## APPARENT PLACES OF α AND δ URSÆ MINORIS, FOR THE UPPER TRANSIT AT GREENWICH.

| MAY. | | | | | JUNE. | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Day of the Month. | α URSÆ MINOR. (*Polaris*) | | δ URSÆ MINOR. | | Day of the Month. | α URSÆ MINOR. (*Polaris*) | | δ URSÆ M | |
| | R. A. | Dec. N. | R. A. | Dec. N. | | R. A. | Dec. N. | R. A. | D |
| | h m 1 0 | ° ′ 88 26 | h m 18 24 | ° ′ 86 35 | | h m 1 1 | ° ′ 88 26 | h m 18 24 | 8 |
| | s | ″ | s | ″ | | s | ″ | s | |
| 1 | 55·99 | 62·5 | 21·13 | 2·6 | 1 | 14·06 | 56·8 | 26·68 | 1 |
| 2 | 56·42 | 62·3 | 21·38 | 2·8 | 2 | 14·79 | 56·6 | 26·77 | 1 |
| 3 | 56·86 | 62·0 | 21·63 | 3·0 | 3 | 15·53 | 56·5 | 26·85 | 1 |
| 4 | 57·30 | 61·7 | 21·88 | 3·2 | 4 | 16·27 | 56·4 | 26·92 | 1 |
| 5 | 57·76 | 61·5 | 22·12 | 3·4 | 5 | 17·01 | 56·4 | 26·99 | 1 |
| 6 | 58·23 | 61·2 | 22·36 | 3·7 | 6 | 17·76 | 56·3 | 27·05 | 1 |
| 7 | 58·72 | 61·0 | 22·59 | 3·9 | 7 | 18·51 | 56·2 | 27·10 | 1 |
| 8 | 59·22 | 60·8 | 22·81 | 4·1 | 8 | 19·26 | 56·1 | 27·15 | 1 |
| 9 | 59·73 | 60·5 | 23·03 | 4·3 | 9 | 20·01 | 56·0 | 27·19 | 1 |
| 10 | 60·26 | 60·3 | 23·24 | 4·6 | 10 | 20·77 | 55·9 | 27·23 | 1 |
| 11 | 60·79 | 60·1 | 23·46 | 4·8 | 11 | 21·54 | 55·9 | 27·26 | 1 |
| 12 | 61·33 | 59·9 | 23·68 | 5·1 | 12 | 22·32 | 55·8 | 27·29 | 1 |
| 13 | 61·89 | 59·7 | 23·89 | 5·4 | 13 | 23·10 | 55·7 | 27·31 | 1 |
| 14 | 62·45 | 59·5 | 24·09 | 5·7 | 14 | 23·88 | 55·6 | 27·32 | 1 |
| 15 | 63·02 | 59·3 | 24·28 | 5·9 | 15 | 24·67 | 55·6 | 27·32 | 1 |
| 16 | 63·59 | 59·1 | 24·47 | 6·2 | 16 | 25·45 | 55·6 | 27·32 | 1 |
| 17 | 64·18 | 58·9 | 24·66 | 6·4 | 17 | 26·24 | 55·5 | 27·31 | 1 |
| 18 | 64·78 | 58·7 | 24·84 | 6·7 | 18 | 27·03 | 55·5 | 27·29 | 1 |
| 19 | 65·39 | 58·6 | 25·01 | 7·0 | 19 | 27·83 | 55·5 | 27·27 | 1 |
| 20 | 66·00 | 58·4 | 25·18 | 7·3 | 20 | 28·63 | 55·5 | 27·24 | 1 |
| 21 | 66·62 | 58·2 | 25·34 | 7·5 | 21 | 29·43 | 55·5 | 27·21 | 1 |
| 22 | 67·25 | 58·1 | 25·49 | 7·8 | 22 | 30·24 | 55·5 | 27·17 | 1 |
| 23 | 67·90 | 57·9 | 25·63 | 8·1 | 23 | 31·05 | 55·5 | 27·12 | 1 |
| 24 | 68·56 | 57·7 | 25·77 | 8·4 | 24 | 31·86 | 55·5 | 27·07 | 1 |
| 25 | 69·23 | 57·6 | 25·90 | 8·7 | 25 | 32·66 | 55·5 | 27·01 | 1 |
| 26 | 69·90 | 57·4 | 26·03 | 9·0 | 26 | 33·47 | 55·5 | 26·94 | 1 |
| 27 | 70·57 | 57·3 | 26·15 | 9·3 | 27 | 34·28 | 55·6 | 26·87 | 1 |
| 28 | 71·25 | 57·2 | 26·27 | 9·6 | 28 | 35·09 | 55·6 | 26·79 | 1 |
| 29 | 71·94 | 57·1 | 26·38 | 9·9 | 29 | 35·92 | 55·6 | 26·71 | 1 |
| 30 | 72·64 | 57·0 | 26·49 | 10·2 | 30 | 36·75 | 55·7 | 26·63 | 2 |
| 31 | 73·34 | 56·9 | 26·59 | 10·5 | 31 | 37·57 | 55·7 | 26·53 | 2 |
| | 74·06 | 56·8 | 26·68 | 10·8 | | | | | |

## APPARENT PLACES OF α AND δ URSÆ MINORIS, FOR THE UPPER TRANSIT AT GREENWICH.

| JULY. | | | | | AUGUST. | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Day of the Month. | α URSÆ MINOR. (*Polaris*) | | δ URSÆ MINOR. | | Day of the Month. | α URSÆ MINOR. (*Polaris*) | | δ URSÆ MINOR. | |
| | R. A. | Dec. N. | R. A. | Dec. N. | | R. A. | Dec. N. | R. A. | Dec. N. |
| | h m 1 1 | ° ′ 88 26 | h m 18 24 | ° ′ 86 35 | | h m 1 2 | ° ′ 88 26 | h m 18 24 | ° ′ 86 35 |
| | s | ″ | s | ″ | | s | ″ | s | ″ |
| 1 | 37·57 | 55·7 | 26·53 | 20·4 | 1 | 1·99 | 59·9 | 20·67 | 29·6 |
| 2 | 38·39 | 55·8 | 26·43 | 20·8 | 2 | 2·72 | 60·1 | 20·39 | 29·9 |
| 3 | 39·21 | 55·8 | 26·32 | 21·1 | 3 | 3·44 | 60·3 | 20·11 | 30·1 |
| 4 | 40·02 | 55·8 | 26·21 | 21·4 | 4 | 4·15 | 60·6 | 19·82 | 30·4 |
| 5 | 40·83 | 55·9 | 26·09 | 21·7 | 5 | 4·86 | 60·8 | 19·53 | 30·6 |
| 6 | 41·64 | 56·0 | 25·96 | 22·0 | 6 | 5·56 | 61·0 | 19·23 | 30·8 |
| 7 | 42·46 | 56·1 | 25·83 | 22·3 | 7 | 6·26 | 61·2 | 18·93 | 31·1 |
| 8 | 43·27 | 56·2 | 25·69 | 22·7 | 8 | 6·95 | 61·4 | 18·63 | 31·3 |
| 9 | 44·08 | 56·3 | 25·55 | 23·0 | 9 | 7·64 | 61·6 | 18·32 | 31·5 |
| 10 | 44·89 | 56·4 | 25·40 | 23·3 | 10 | 8·32 | 61·9 | 18·01 | 31·8 |
| 11 | 45·70 | 56·5 | 25·24 | 23·6 | 11 | 9·00 | 62·2 | 17·70 | 32·0 |
| 12 | 46·51 | 56·6 | 25·08 | 23·9 | 12 | 9·66 | 62·4 | 17·38 | 32·3 |
| 13 | 47·32 | 56·7 | 24·91 | 24·2 | 13 | 10·32 | 62·7 | 17·06 | 32·5 |
| 14 | 48·12 | 56·8 | 24·73 | 24·5 | 14 | 10·97 | 63·0 | 16·74 | 32·7 |
| 15 | 48·92 | 57·0 | 24·55 | 24·8 | 15 | 11·61 | 63·2 | 16·40 | 33·0 |
| 16 | 49·72 | 57·1 | 24·37 | 25·1 | 16 | 12·25 | 63·5 | 16·06 | 33·2 |
| 17 | 50·52 | 57·3 | 24·18 | 25·4 | 17 | 12·88 | 63·8 | 15·72 | 33·4 |
| 18 | 51·31 | 57·4 | 23·99 | 25·7 | 18 | 13·50 | 64·0 | 15·37 | 33·6 |
| 19 | 52·09 | 57·5 | 23·78 | 26·0 | 19 | 14·12 | 64·3 | 15·02 | 33·8 |
| 20 | 52·87 | 57·6 | 23·57 | 26·3 | 20 | 14·74 | 64·6 | 14·66 | 34·0 |
| 21 | 53·65 | 57·8 | 23·35 | 26·6 | 21 | 15·34 | 64·9 | 14·31 | 34·2 |
| 22 | 54·43 | 57·9 | 23·13 | 26·9 | 22 | 15·93 | 65·2 | 13·96 | 34·3 |
| 23 | 55·21 | 58·1 | 22·90 | 27·2 | 23 | 16·51 | 65·5 | 13·60 | 34·5 |
| 24 | 55·99 | 58·3 | 22·67 | 27·5 | 24 | 17·08 | 65·8 | 13·23 | 34·7 |
| 25 | 56·76 | 58·5 | 22·43 | 27·8 | 25 | 17·64 | 66·1 | 12·86 | 34·8 |
| 26 | 57·52 | 58·7 | 22·19 | 28·0 | 26 | 18·20 | 66·4 | 12·49 | 35·0 |
| 27 | 58·28 | 58·9 | 21·95 | 28·3 | 27 | 18·75 | 66·7 | 12·12 | 35·2 |
| 28 | 59·03 | 59·1 | 21·70 | 28·6 | 28 | 19·28 | 67·0 | 11·74 | 35·3 |
| 29 | 59·78 | 59·3 | 21·45 | 28·8 | 29 | 19·80 | 67·4 | 11·36 | 35·5 |
| 30 | 60·52 | 59·5 | 21·19 | 29·1 | 30 | 20·31 | 67·7 | 10·98 | 35·6 |
| 31 | 61·26 | 59·7 | 20·93 | 29·4 | 31 | 20·82 | 68·1 | 10·60 | 35·8 |
| 32 | 61·99 | 59·9 | 20·67 | 29·6 | 32 | 21·32 | 68·4 | 10·21 | 36·0 |

## APPARENT PLACES OF α AND δ URSÆ MINORIS, FOR THE UPPER TRANSIT AT GREENWICH.

| SEPTEMBER. | | | | | OCTOBER. | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Day of the Month. | α URSÆ MINOR. (*Polaris*) | | δ URSÆ MINOR. | | Day of the Month. | α URSÆ MINOR. (*Polaris*) | | δ URSÆ MINOR. | |
| | R. A. | Dec. N. | R. A. | Dec. N. | | R. A. | Dec. N. | R. A. | Dec. N. |
| | h m 1 2 | ° ′ 88 27 | h m 18 23 | ° ′ 86 35 | | h m 1 2 | ° ′ 88 27 | h m 18 23 | ° ′ 86 35 |
| | s | ″ | s | ″ | | s | ″ | s | ″ |
| 1 | 21·32 | 8·4 | 70·21 | 36·0 | 1 | 31·59 | 19·2 | 57·66 | 38·3 |
| 2 | 21·82 | 8·7 | 69·82 | 36·2 | 2 | 31·76 | 19·6 | 57·23 | 38·3 |
| 3 | 22·31 | 9·1 | 69·42 | 36·3 | 3 | 31·92 | 20·0 | 56·80 | 38·3 |
| 4 | 22·78 | 9·4 | 69·02 | 36·4 | 4 | 32·07 | 20·4 | 56·37 | 38·3 |
| 5 | 23·24 | 9·7 | 68·62 | 36·6 | 5 | 32·20 | 20·8 | 55·94 | 38·3 |
| 6 | 23·69 | 10·1 | 68·22 | 36·7 | 6 | 32·32 | 21·1 | 55·51 | 38·2 |
| 7 | 24·14 | 10·4 | 67·82 | 36·8 | 7 | 32·43 | 21·5 | 55·07 | 38·2 |
| 8 | 24·57 | 10·7 | 67·42 | 36·9 | 8 | 32·53 | 21·9 | 54·64 | 38·2 |
| 9 | 24·99 | 11·1 | 67·01 | 37·0 | 9 | 32·62 | 22·3 | 54·21 | 38·1 |
| 10 | 25·41 | 11·4 | 66·60 | 37·1 | 10 | 32·69 | 22·7 | 53·78 | 38·1 |
| 11 | 25·81 | 11·7 | 66·18 | 37·2 | 11 | 32·75 | 23·1 | 53·35 | 38·1 |
| 12 | 26·20 | 12·1 | 65·76 | 37·3 | 12 | 32·80 | 23·5 | 52·92 | 38·0 |
| 13 | 26·58 | 12·5 | 65·34 | 37·4 | 13 | 32·83 | 23·9 | 52·49 | 38·0 |
| 14 | 26·96 | 12·9 | 64·92 | 37·5 | 14 | 32·85 | 24·3 | 52·07 | 38·0 |
| 15 | 27·33 | 13·2 | 64·50 | 37·6 | 15 | 32·87 | 24·7 | 51·65 | 37·9 |
| 16 | 27·68 | 13·6 | 64·09 | 37·7 | 16 | 32·87 | 25·1 | 51·24 | 37·8 |
| 17 | 28·01 | 14·0 | 63·67 | 37·8 | 17 | 32·85 | 25·5 | 50·82 | 37·7 |
| 18 | 28·33 | 14·3 | 63·24 | 37·8 | 18 | 32·82 | 25·8 | 50·39 | 37·6 |
| 19 | 28·64 | 14·7 | 62·81 | 37·9 | 19 | 32·78 | 26·2 | 49·97 | 37·5 |
| 20 | 28·94 | 15·1 | 62·39 | 37·9 | 20 | 32·73 | 26·6 | 49·56 | 37·4 |
| 21 | 29·24 | 15·4 | 61·97 | 38·0 | 21 | 32·67 | 26·9 | 49·15 | 37·3 |
| 22 | 29·54 | 15·8 | 61·54 | 38·0 | 22 | 32·60 | 27·3 | 48·74 | 37·2 |
| 23 | 29·82 | 16·2 | 61·11 | 38·1 | 23 | 32·52 | 27·7 | 48·33 | 37·1 |
| 24 | 30·09 | 16·5 | 60·68 | 38·1 | 24 | 32·43 | 28·1 | 47·92 | 37·0 |
| 25 | 30·34 | 16·9 | 60·25 | 38·1 | 25 | 32·32 | 28·5 | 47·51 | 36·9 |
| 26 | 30·58 | 17·3 | 59·82 | 38·1 | 26 | 32·20 | 28·9 | 47·10 | 36·8 |
| 27 | 30·81 | 17·7 | 59·39 | 38·2 | 27 | 32·07 | 29·2 | 46·70 | 36·7 |
| 28 | 31·03 | 18·1 | 58·96 | 38·2 | 28 | 31·92 | 29·6 | 46·30 | 36·6 |
| 29 | 31·23 | 18·5 | 58·53 | 38·2 | 29 | 31·75 | 29·9 | 45·90 | 36·4 |
| 30 | 31·42 | 18·8 | 58·10 | 38·3 | 30 | 31·57 | 30·3 | 45·51 | 36·3 |
| | | | | | 31 | 31·39 | 30·7 | 45·12 | 36·1 |
| 31 | 31·59 | 19·2 | 57·66 | 38·3 | | | | | |
| | | | | | 32 | 31·19 | 31·1 | 44·73 | 36·0 |

## APPARENT PLACES OF α AND δ URSÆ MINORIS, FOR THE UPPER TRANSIT AT GREENWICH.

| NOVEMBER. | | | | | DECEMBER. | | | | |
|---|---|---|---|---|---|---|---|---|---|
| α URSÆ MINOR. (*Polaris*) | | δ URSÆ MINOR. | | Day of the Month. | α URSÆ MINOR. (*Polaris*) | | δ URSÆ MINOR. | | |
| R. A. | Dec. N. | R. A. | Dec. N. | | R. A. | Dec. N. | R. A. | Dec. N. |
| h m s 1 2 31·19 | ° ′ ″ 88 27 31·1 | h m s 18 23 44·73 | ° ′ ″ 86 35 36·0 | | h m s 1 1 79·64 | ° ′ ″ 88 27 40·9 | h m s 18 23 35·01 | ° ′ ″ 86 35 29·4 |
| 30·97 | 31·5 | 44·35 | 35·8 | 1 | 79·09 | 41·2 | 34·76 | 29·1 |
| 30·74 | 31·9 | 43·97 | 35·7 | 2 | 78·53 | 41·4 | 34·51 | 28·9 |
| 30·50 | 32·2 | 43·59 | 35·5 | 3 | 77·96 | 41·6 | 34·27 | 28·6 |
| 30·25 | 32·6 | 43·22 | 35·4 | 4 | 77·37 | 41·9 | 34·04 | 28·3 |
| 30·00 | 32·9 | 42·85 | 35·2 | 5 | 76·78 | 42·2 | 33·82 | 28·0 |
| 29·73 | 33·3 | 42·48 | 35·0 | 6 | 76·17 | 42·4 | 33·61 | 27·7 |
| 29·44 | 33·7 | 42·12 | 34·8 | 7 | 75·55 | 42·7 | 33·40 | 27·4 |
| 29·13 | 34·0 | 41·76 | 34·6 | 8 | 74·93 | 42·9 | 33·19 | 27·1 |
| 28·81 | 34·3 | 41·41 | 34·4 | 9 | 74·30 | 43·1 | 32·99 | 26·8 |
| 28·48 | 34·7 | 41·06 | 34·2 | 10 | 73·66 | 43·3 | 32·80 | 26·5 |
| 28·15 | 35·0 | 40·72 | 34·0 | 11 | 73·01 | 43·5 | 32·61 | 26·2 |
| 27·80 | 35·3 | 40·38 | 33·8 | 12 | 72·36 | 43·7 | 32·43 | 25·9 |
| 27·44 | 35·7 | 40·04 | 33·6 | 13 | 71·70 | 44·0 | 32·27 | 25·6 |
| 27·07 | 36·0 | 39·70 | 33·4 | 14 | 71·03 | 44·2 | 32·11 | 25·3 |
| 26·69 | 36·3 | 39·37 | 33·2 | 15 | 70·35 | 44·4 | 31·95 | 25·0 |
| 26·30 | 36·7 | 39·04 | 32·9 | 16 | 69·67 | 44·5 | 31·79 | 24·6 |
| 25·91 | 37·0 | 38·72 | 32·7 | 17 | 68·98 | 44·7 | 31·65 | 24·3 |
| 25·50 | 37·3 | 38·40 | 32·5 | 18 | 68·28 | 44·9 | 31·51 | 24·0 |
| 25·08 | 37·7 | 38·09 | 32·2 | 19 | 67·58 | 45·1 | 31·38 | 23·7 |
| 24·64 | 38·0 | 37·78 | 32·0 | 20 | 66·87 | 45·3 | 31·25 | 23·4 |
| 24·19 | 38·3 | 37·49 | 31·8 | 21 | 66·16 | 45·4 | 31·14 | 23·0 |
| 23·73 | 38·6 | 37·20 | 31·5 | 22 | 65·44 | 45·6 | 31·04 | 22·7 |
| 23·25 | 38·9 | 36·91 | 31·3 | 23 | 64·72 | 45·7 | 30·94 | 22·4 |
| 22·77 | 39·2 | 36·62 | 31·0 | 24 | 63·98 | 45·8 | 30·85 | 22·1 |
| 22·28 | 39·5 | 36·33 | 30·8 | 25 | 63·23 | 46·0 | 30·76 | 21·7 |
| 21·79 | 39·8 | 36·04 | 30·5 | 26 | 62·48 | 46·1 | {30·68 / 30·60} | {21·4 / 21·0} |
| 21·28 | 40·1 | 35·77 | 30·2 | 27 | 61·72 | 46·2 | 30·52 | 20·7 |
| 20·75 | 40·3 | 35·51 | 30·0 | 28 | 60·96 | 46·4 | 30·45 | 20·4 |
| 20·20 | 40·6 | 35·26 | 29·7 | 29 | 60·21 | 46·5 | 30·39 | 20·0 |
| | | | | 30 | 59·47 | 46·6 | 30·34 | 19·7 |
| 19·64 | 40·9 | 35·01 | 29·4 | | | | | |
| | | | | 32 | 58·71 | 46·7 | 30·30 | [illegible] |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | α Andromedæ. | | | | γ Pegasi. (*Algenib*) | | | | β Hydri. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *North.* | | R. A. | Dec |
| | h m<br>0 0 | | ° ′<br>28 12 | | h m<br>0 4 | | ° ′<br>14 17 | | h m<br>0 17 | 7 |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | ″ |
| Jan. 1 | 4·13 | | 15·5 | | 56·93 | | 22·8 | | 13·15 | 63 |
| | | 0·13 | | 0·9 | | 0·11 | | 0·8 | | |
| 11 | 4·00 | | 14·6 | | 56·82 | | 22·0 | | 12·25 | 62 |
| | | 0·12 | | 1·2 | | 0·09 | | 0·9 | | |
| 21 | 3·88 | | 13·4 | | 56·73 | | 21·1 | | 11·40 | 60 |
| | | 0·11 | | 1·4 | | 0·09 | | 1·0 | | |
| 31 | 3·77 | | 12·0 | | 56·64 | | 20·1 | | 10·65 | 58 |
| | | 0·08 | | 1·5 | | 0·07 | | 1·0 | | 0·64 |
| Feb. 10 | 3·69 | | 10·5 | | 56·57 | | 19·1 | | 10·01 | 55 |
| | | 0·06 | | 1·5 | | 0·05 | | 0·9 | | |
| 20 | 3·63 | | 9·0 | | 56·52 | | 18·2 | | 9·49 | 52 |
| | | 0·03 | | 1·6 | | 0·02 | | 0·9 | | 0·38 |
| Mar. 2 | 3·60 | | 7·4 | | 56·50 | | 17·3 | | 9·11 | 48 |
| | | 0·00 | | 1·4 | | 0·00 | | 0·7 | | 0·23 |
| 12 | 3·60 | | 6·0 | | 56·50 | | 16·6 | | 8·88 | 45 |
| | | 0·05 | | 1·3 | | 0·05 | | 0·5 | | 0·07 |
| 22 | 3·65 | | 4·7 | | 56·55 | | 16·1 | | 8·81 | 41 |
| | | 0·11 | | 1·2 | | 0·10 | | 0·3 | | 0·11 |
| Apr. 1 | *3·76 | | 3·5 | | *56·65 | | 15·8 | | *8·92 | 37 |
| | | 0·15 | | 0·7 | | 0·13 | | 0·1 | | 0·26 |
| 11 | 3·91 | | 2·8 | | 56·78 | | 15·9 | | 9·18 | 33 |
| | | 0·19 | | 0·4 | | 0·18 | | 0·3 | | 0·42 |
| 21 | 4·10 | | 2·4 | | 56·96 | | 16·2 | | 9·60 | 29 |
| | | 0·23 | | 0·1 | | 0·21 | | 0·6 | | 0·57 |
| May 1 | 4·33 | | 2·3 | | 57·17 | | 16·8 | | 10·17 | 25 |
| | | 0·27 | | 0·4 | | 0·25 | | 1·0 | | 0·72 |
| 11 | 4·60 | | 2·7 | | 57·42 | | 17·8 | | 10·89 | 22 |
| | | 0·30 | | 0·7 | | 0·28 | | 1·3 | | 0·84 |
| 21 | 4·90 | | 3·4 | | 57·70 | | 19·1 | | 11·73 | 19 |
| | | 0·33 | | 1·1 | | 0·30 | | 1·5 | | 0·94 |
| 31 | 5·23 | | 4·5 | | 58·00 | | 20·6 | | 12·67 | 17 |
| | | 0·35 | | 1·5 | | 0·32 | | 1·8 | | 1·03 |
| June 10 | 5·58 | | 6·0 | | 58·32 | | 22·4 | | 13·70 | 15 |
| | | 0·35 | | 1·8 | | 0·33 | | 2·0 | | 1·10 |
| 20 | 5·93 | | 7·8 | | 58·65 | | 24·4 | | 14·80 | 13 |
| | | 0·35 | | 2·1 | | 0·34 | | 2·1 | | 1·13 |
| 30 | 6·28 | | 9·9 | | 58·99 | | 26·5 | | 15·93 | 12 |
| | | 0·35 | | 2·3 | | 0·32 | | 2·2 | | 1·13 |
| July 10 | 6·63 | | 12·2 | | 59·31 | | 28·7 | | 17·06 | 11 |
| | | 0·32 | | 2·4 | | 0·31 | | 2·2 | | 1·11 |
| 20 | 6·95 | | 14·6 | | 59·62 | | 30·9 | | 18·17 | 12 |
| | | 0·30 | | 2·5 | | 0·28 | | 2·2 | | 1·04 |
| 30 | 7·25 | | 17·1 | | 59·90 | | 33·1 | | 19·21 | 12 |
| | | 0·26 | | 2·6 | | 0·26 | | 2·2 | | 0·96 |
| Aug. 9 | 7·51 | | 19·7 | | 60·16 | | 35·3 | | 20·17 | 13 |
| | | 0·23 | | 2·6 | | 0·22 | | 2·0 | | 0·84 |
| 19 | 7·74 | | 22·3 | | 60·38 | | 37·3 | | 21·01 | 15 |
| | | 0·19 | | 2·5 | | 0·19 | | 1·9 | | 0·69 |
| 29 | 7·93 | | 24·8 | | 60·57 | | 39·2 | | 21·70 | 17 |
| | | 0·15 | | 2·4 | | 0·15 | | 1·7 | | 0·52 |
| Sept. 8 | 8·08 | | 27·2 | | 60·72 | | 40·9 | | 22·22 | 20 |
| | | 0·11 | | 2·3 | | 0·10 | | 1·5 | | 0·34 |
| 18 | 8·19 | | 29·5 | | 60·82 | | 42·4 | | 22·56 | 23 |
| | | 0·06 | | 2·0 | | 0·07 | | 1·3 | | 0·15 |
| 28 | 8·25 | | 31·5 | | 60·89 | | 43·7 | | 22·71 | 26 |
| | | 0·03 | | 1·9 | | 0·04 | | 1·0 | | 0·04 |
| Oct. 8 | 8·28 | | 33·4 | | 60·93 | | 44·7 | | 22·67 | 29 |
| | | 0·00 | | 1·6 | | 0·01 | | 0·9 | | 0·24 |
| 18 | 8·28 | | 35·0 | | 60·94 | | 45·6 | | 22·43 | 31 |
| | | 0·04 | | 1·4 | | 0·02 | | 0·6 | | 0·42 |
| 28 | 8·24 | | 36·4 | | 60·92 | | 46·2 | | 22·01 | 34 |
| | | 0·06 | | 1·0 | | 0·05 | | 0·4 | | 0·58 |
| Nov. 7 | 8·18 | | 37·4 | | 60·87 | | 46·6 | | 21·43 | 37 |
| | | 0·08 | | 0·8 | | 0·07 | | 0·1 | | 0·72 |
| 17 | 8·10 | | 38·2 | | 60·80 | | 46·7 | | 20·71 | 39 |
| | | 0·10 | | 0·4 | | 0·08 | | 0·0 | | 0·83 |
| 27 | 8·00 | | 38·6 | | 60·72 | | 46·7 | | 19·88 | 40 |
| | | 0·12 | | 0·2 | | 0·10 | | 0·3 | | 0·91 |
| Dec. 7 | 7·88 | | 38·8 | | 60·62 | | 46·4 | | 18·97 | 41 |
| | | 0·13 | | 0·2 | | 0·10 | | 0·4 | | 0·94 |
| 17 | 7·75 | | 38·6 | | 60·52 | | 46·0 | | 18·03 | 42 |
| | | 0·13 | | 0·5 | | 0·11 | | 0·6 | | 0·96 |
| 27 | 7·62 | | 38·1 | | 60·41 | | 45·4 | | 17·07 | 41 |
| | | 0·12 | | 0·8 | | 0·11 | | 0·7 | | 0·94 |
| 37 | 7·50 | | 37·3 | | 60·30 | | 44·7 | | 16·13 | 40 |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | α Cassiopeæ. | | | | β Ceti. | | | | θ¹ Ceti. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *South.* | | R. A. | | Dec. *South.* | |
| | h m<br>0 31 | | ° ′<br>55 39 | | h m<br>0 35 | | ° ′<br>18 51 | | h m<br>1 15 | | ° ′<br>9 0 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| Jan. 1 | 23·76 | | 29·6 | | 30·56 | | 80·9 | | 59·17 | | 56·4 | |
| | | 0·27 | | 0·5 | | 0·12 | | 0·4 | | 0·11 | | 0·6 |
| 11 | 23·49 | | 29·1 | | 30·44 | | 81·3 | | 59·06 | | 57·0 | |
| | | 0·27 | | 0·9 | | 0·11 | | 0·1 | | 0·12 | | 0·5 |
| 21 | 23·22 | | 28·2 | | 30·33 | | 81·4 | | 58·94 | | 57·5 | |
| | | 0·25 | | 1·5 | | 0·10 | | 0·1 | | 0·12 | | 0·3 |
| 31 | 22·97 | | 26·7 | | 30·23 | | 81·3 | | 58·82 | | 57·8 | |
| | | 0·23 | | 1·8 | | 0·10 | | 0·4 | | 0·11 | | 0·0 |
| Feb. 10 | 22·74 | | 24·9 | | 30·13 | | 80·9 | | 58·71 | | 57·8 | |
| | | 0·18 | | 2·1 | | 0·08 | | 0·7 | | 0·10 | | 0·1 |
| 20 | 22·56 | | 22·8 | | 30·05 | | 80·2 | | 58·61 | | 57·7 | |
| | | 0·14 | | 2·3 | | 0·04 | | 1·0 | | 0·07 | | 0·4 |
| Mar. 2 | 22·42 | | 20·5 | | 30·01 | | 79·2 | | 58·54 | | 57·3 | |
| | | 0·08 | | 2·4 | | 0·02 | | 1·2 | | 0·06 | | 0·6 |
| 12 | 22·34 | | 18·1 | | 29·99 | | 78·0 | | 58·48 | | 56·7 | |
| | | 0·01 | | 2·5 | | 0·01 | | 1·4 | | 0·02 | | 0·8 |
| 22 | 22·33 | | 15·6 | | 30·00 | | 76·6 | | 58·46 | | 55·9 | |
| | | 0·07 | | 2·6 | | 0·06 | | 1·9 | | 0·01 | | 1·1 |
| Apr. 1 | *22·40 | | 13·0 | | *30·06 | | 74·7 | | 58·47 | | 54·8 | |
| | | 0·15 | | 2·2 | | 0·09 | | 1·9 | | 0·05 | | 1·3 |
| 11 | 22·55 | | 10·8 | | 30·15 | | 72·8 | | *58·52 | | 53·5 | |
| | | 0·21 | | 1·9 | | 0·14 | | 2·2 | | 0·10 | | 1·7 |
| 21 | 22·76 | | 8·9 | | 30·29 | | 70·6 | | 58·62 | | 51·8 | |
| | | 0·28 | | 1·4 | | 0·18 | | 2·2 | | 0·14 | | 1·8 |
| May 1 | 23·04 | | 7·5 | | 30·47 | | 68·4 | | 58·76 | | 50·0 | |
| | | 0·35 | | 1·0 | | 0·22 | | 2·4 | | 0·19 | | 2·0 |
| 11 | 23·39 | | 6·5 | | 30·69 | | 66·0 | | 58·95 | | 48·0 | |
| | | 0·41 | | 0·6 | | 0·26 | | 2·4 | | 0·22 | | 2·1 |
| 21 | 23·80 | | 5·9 | | 30·95 | | 63·6 | | 59·17 | | 45·9 | |
| | | 0·44 | | 0·2 | | 0·28 | | 2·5 | | 0·25 | | 2·1 |
| 31 | 24·24 | | 5·7 | | 31·23 | | 61·1 | | 59·42 | | 43·8 | |
| | | 0·47 | | 0·4 | | 0·31 | | 2·4 | | 0·28 | | 2·3 |
| June 10 | 24·71 | | 6·1 | | 31·54 | | 58·7 | | 59·70 | | 41·5 | |
| | | 0·49 | | 1·0 | | 0·33 | | 2·3 | | 0·31 | | 2·2 |
| 20 | 25·20 | | 7·1 | | 31·87 | | 56·4 | | 60·01 | | 39·3 | |
| | | 0·49 | | 1·3 | | 0·33 | | 2·1 | | 0·32 | | 2·2 |
| 30 | 25·69 | | 8·4 | | 32·20 | | 54·3 | | 60·33 | | 37·1 | |
| | | 0·48 | | 1·8 | | 0·33 | | 1·9 | | 0·32 | | 2·1 |
| July 10 | 26·17 | | 10·2 | | 32·53 | | 52·4 | | 60·65 | | 35·0 | |
| | | 0·47 | | 2·2 | | 0·33 | | 1·6 | | 0·32 | | 1·9 |
| 20 | 26·64 | | 12·4 | | 32·86 | | 50·8 | | 60·97 | | 33·1 | |
| | | 0·44 | | 2·5 | | 0·31 | | 1·3 | | 0·31 | | 1·7 |
| 30 | 27·08 | | 14·9 | | 33·17 | | 49·5 | | 61·28 | | 31·4 | |
| | | 0·39 | | 2·8 | | 0·28 | | 1·0 | | 0·29 | | 1·4 |
| Aug. 9 | 27·47 | | 17·7 | | 33·45 | | 48·5 | | 61·57 | | 30·0 | |
| | | 0·35 | | 3·0 | | 0·25 | | 0·6 | | 0·27 | | 1·1 |
| 19 | 27·82 | | 20·7 | | 33·70 | | 47·9 | | 61·84 | | 28·9 | |
| | | 0·30 | | 3·2 | | 0·22 | | 0·3 | | 0·24 | | 0·8 |
| 29 | 28·12 | | 23·9 | | 33·92 | | 47·6 | | 62·08 | | 28·1 | |
| | | 0·24 | | 3·3 | | 0·18 | | 0·1 | | 0·21 | | 0·5 |
| Sept. 8 | 28·36 | | 27·2 | | 34·10 | | 47·7 | | 62·29 | | 27·6 | |
| | | 0·19 | | 3·3 | | 0·14 | | 0·4 | | 0·18 | | 0·2 |
| 18 | 28·55 | | 30·5 | | 34·24 | | 48·1 | | 62·47 | | 27·4 | |
| | | 0·13 | | 3·3 | | 0·10 | | 0·7 | | 0·14 | | 0·1 |
| 28 | 28·68 | | 33·8 | | 34·34 | | 48·8 | | 62·61 | | 27·5 | |
| | | 0·07 | | 3·1 | | 0·06 | | 0·9 | | 0·11 | | 0·4 |
| Oct. 8 | 28·75 | | 36·9 | | 34·40 | | 49·7 | | 62·72 | | 27·9 | |
| | | 0·02 | | 3·0 | | 0·03 | | 1·1 | | 0·07 | | 0·6 |
| 18 | 28·77 | | 39·9 | | 34·43 | | 50·8 | | 62·79 | | 28·5 | |
| | | 0·03 | | 2·8 | | 0·00 | | 1·2 | | 0·04 | | 0·8 |
| 28 | 28·74 | | 42·7 | | 34·43 | | 52·0 | | 62·83 | | 29·3 | |
| | | 0·09 | | 2·5 | | 0·04 | | 1·3 | | 0·01 | | 1·0 |
| Nov. 7 | 28·65 | | 45·2 | | 34·39 | | 53·3 | | 62·84 | | 30·3 | |
| | | 0·13 | | 2·1 | | 0·06 | | 1·3 | | 0·02 | | 1·0 |
| 17 | 28·52 | | 47·3 | | 34·33 | | 54·6 | | 62·82 | | 31·3 | |
| | | 0·17 | | 1·8 | | 0·08 | | 1·3 | | 0·04 | | 1·0 |
| 27 | 28·35 | | 49·1 | | 34·25 | | 55·9 | | 62·78 | | 32·3 | |
| | | 0·20 | | 1·3 | | 0·09 | | 1·1 | | 0·06 | | 1·0 |
| Dec. 7 | 28·15 | | 50·4 | | 34·16 | | 57·0 | | 62·72 | | 33·3 | |
| | | 0·23 | | 0·9 | | 0·11 | | 0·9 | | 0·08 | | 1·0 |
| 17 | 27·92 | | 51·3 | | 34·05 | | 57·9 | | 62·64 | | 34·3 | |
| | | 0·26 | | 0·3 | | 0·11 | | 0·7 | | 0·09 | | 0·8 |
| 27 | 27·66 | | 51·6 | | 33·94 | | 58·6 | | 62·55 | | 35·1 | |
| | | 0·27 | | 0·2 | | 0·12 | | 0·6 | | 0·11 | | 0·7 |
| 37 | 27·39 | | 51·4 | | 33·82 | | 59·2 | | 62·44 | | 35·8 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STA
### FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | α Eridani. (*Achernar*) | | | | α ARIETIS. | | | | γ Ceti. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *South.* | | R. A. | | Dec. *North.* | | R. A. | D |
| | h m<br>1 31 | | ° ′<br>58 2 | | h m<br>1 58 | | ° ′<br>22 41 | | h m<br>2 34 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s |
| Jan. 1 | 44·12 | 0·33 | 97·5 | 0·3 | 6·93 | 0·11 | 64·9 | 0·3 | 58·76 | 0·09 |
| 11 | 43·79 | 0·32 | 97·8 | 0·3 | 6·82 | 0·12 | 64·6 | 0·4 | 58·67 | 0·11 |
| 21 | 43·47 | 0·33 | 97·5 | 0·8 | 6·70 | 0·14 | 64·2 | 0·7 | 58·56 | 0·12 |
| 31 | 43·14 | | 96·7 | | 6·56 | | 63·5 | | 58·44 | |
| | | 0·30 | | 1·4 | | 0·14 | | 0·7 | | 0·14 |
| Feb. 10 | 42·84 | 0·28 | 95·3 | 1·9 | 6·42 | 0·13 | 62·8 | 0·9 | 58·30 | 0·13 |
| 20 | 42·56 | 0·25 | 93·4 | 2·3 | 6·29 | 0·12 | 61·9 | 0·8 | 58·17 | 0·13 |
| Mar. 2 | 42·31 | 0·19 | 91·1 | 2·7 | 6·17 | 0·10 | 61·1 | 0·9 | 58·04 | 0·11 |
| 12 | 42·12 | | 88·4 | | 6·07 | | 60·2 | | 57·93 | |
| | | 0·15 | | 3·1 | | 0·07 | | 0·8 | | 0·09 |
| 22 | 41·97 | 0·09 | 85·3 | 3·3 | 6·00 | 0·02 | 59·4 | 0·7 | 57·84 | 0·06 |
| Apr. 1 | 41·88 | 0·02 | 82·0 | 3·4 | 5·98 | 0·01 | 58·7 | 0·6 | 57·78 | 0·02 |
| 11 | 41·86 | 0·06 | 78·6 | 3·7 | 5·99 | 0·07 | 58·1 | 0·4 | 57·76 | 0·02 |
| 21 | *41·92 | | 74·9 | | 6·06 | | 57·7 | | 57·78 | |
| | | 0·13 | | 4·0 | * | 0·12 | | 0·2 | | 0·06 |
| May 1 | 42·05 | 0·19 | 70·9 | 3·6 | 6·18 | 0·17 | 57·5 | 0·1 | 57·84 | 0·12 |
| 11 | 42·24 | 0·26 | 67·3 | 3·5 | 6·35 | 0·21 | 57·6 | 0·4 | *57·96 | 0·16 |
| 21 | 42·50 | 0·33 | 63·8 | 3·3 | 6·56 | 0·25 | 58·0 | 0·7 | 58·12 | 0·20 |
| 31 | 42·83 | | 60·5 | | 6·81 | | 58·7 | | 58·32 | |
| | | 0·38 | | 3·0 | | 0·28 | | 0·9 | | 0·24 |
| June 10 | 43·21 | 0·42 | 57·5 | 2·7 | 7·09 | 0·32 | 59·6 | 1·2 | 58·56 | 0·27 |
| 20 | 43·63 | 0·46 | 54·8 | 2·2 | 7·41 | 0·33 | 60·8 | 1·4 | 58·83 | 0·29 |
| 30 | 44·09 | 0·47 | 52·6 | 1·8 | 7·74 | 0·34 | 62·2 | 1·6 | 59·12 | 0·30 |
| July 10 | 44·56 | | 50·8 | | 8·08 | | 63·8 | | 59·42 | |
| | | 0·49 | | 1·3 | | 0·34 | | 1·7 | | 0·32 |
| 20 | 45·05 | 0·48 | 49·5 | 0·7 | 8·42 | 0·34 | 65·5 | 1·9 | 59·74 | 0·32 |
| 30 | 45·53 | 0·47 | 48·8 | 0·2 | 8·76 | 0·33 | 67·4 | 1·8 | 60·06 | 0·31 |
| Aug. 9 | 46·00 | 0·43 | 48·6 | 0·4 | 9·09 | 0·31 | 69·2 | 1·9 | 60·37 | 0·30 |
| 19 | 46·43 | | 49·0 | | 9·40 | | 71·1 | | 60·67 | |
| | | 0·40 | | 1·0 | | 0·28 | | 1·9 | | 0·28 |
| 29 | 46·83 | 0·34 | 50·0 | 1·5 | 9·68 | 0·26 | 73·0 | 1·7 | 60·95 | 0·26 |
| Sept. 8 | 47·17 | 0·28 | 51·5 | 1·9 | 9·94 | 0·23 | 74·7 | 1·7 | 61·21 | 0·24 |
| 18 | 47·45 | 0·22 | 53·4 | 2·3 | 10·17 | 0·19 | 76·4 | 1·5 | 61·45 | 0·21 |
| 28 | 47·67 | | 55·7 | | 10·36 | | 77·9 | | 61·66 | |
| | | 0·14 | | 2·7 | | 0·17 | | 1·4 | | 0·19 |
| Oct. 8 | 47·81 | 0·07 | 58·4 | 2·8 | 10·53 | 0·13 | 79·3 | 1·2 | 61·85 | 0·15 |
| 18 | 47·88 | 0·01 | 61·2 | 2·9 | 10·66 | 0·10 | 80·5 | 1·1 | 62·00 | 0·13 |
| 28 | 47·89 | 0·07 | 64·1 | 2·8 | 10·76 | 0·06 | 81·6 | 0·8 | 62·13 | 0·09 |
| Nov. 7 | 47·82 | | 66·9 | | 10·82 | | 82·4 | | 62·22 | |
| | | 0·13 | | 2·7 | | 0·04 | | 0·7 | | 0·07 |
| 17 | 47·69 | 0·18 | 69·6 | 2·5 | 10·86 | 0·00 | 83·1 | 0·5 | 62·29 | 0·03 |
| 27 | 47·51 | 0·23 | 72·1 | 2·0 | 10·86 | 0·02 | 83·6 | 0·4 | 62·32 | 0·00 |
| Dec. 7 | 47·28 | 0·27 | 74·1 | 1·6 | 10·84 | 0·05 | 84·0 | 0·1 | 62·32 | 0·02 |
| 17 | 47·01 | | 75·7 | | 10·79 | | 84·1 | | 62·30 | |
| | | 0·30 | | 1·1 | | 0·08 | | 0·0 | | 0·05 |
| 27 | 46·71 | 0·32 | 76·8 | 0·6 | 10·71 | 0·10 | 84·1 | 0·2 | 62·25 | 0·08 |
| 37 | 46·39 | | 77·4 | | 10·61 | | 83·9 | | 62·17 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| ay the onth. | α Ceti. | | | | α Persei. | | | | η Tauri. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *North.* | | R. A. | | Dec. *North.* | |
| | h m 2 53 | | ° ′ 3 27 | | h m 3 12 | | ° ′ 49 16 | | h m 3 37 | | ° ′ 23 36 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| n. 1 | 53·00 | 0·09 | 21·2 | 0·7 | 52·65 | 0·14 | 73·1 | 1·0 | 56·44 | 0·06 | 19·3 | 0·1 |
| 11 | 52·91 | 0·10 | 20·5 | 0·6 | 52·51 | 0·18 | 74·1 | 0·6 | 56·38 | 0·09 | 19·4 | 0·1 |
| 21 | 52·81 | 0·13 | 19·9 | 0·5 | 52·33 | 0·21 | 74·7 | 0·3 | 56·29 | 0·13 | 19·3 | 0·2 |
| 31 | 52·68 | | 19·4 | | 52·12 | | 75·0 | | 56·16 | | 19·1 | |
| | | 0·13 | | 0·4 | | 0·23 | | 0·1 | | 0·14 | | 0·2 |
| b. 10 | 52·55 | 0·14 | 19·0 | 0·3 | 51·89 | 0·25 | 74·9 | 0·5 | 56·02 | 0·16 | 18·9 | 0·4 |
| 20 | 52·41 | 0·14 | 18·7 | 0·3 | 51·64 | 0·24 | 74·4 | 0·9 | 55·86 | 0·16 | 18·5 | 0·4 |
| ar. 2 | 52·27 | 0·12 | 18·4 | 0·0 | 51·40 | 0·22 | 73·5 | 1·2 | 55·70 | 0·16 | 18·1 | 0·6 |
| 12 | 52·15 | | 18·4 | | 51·18 | | 72·3 | | 55·54 | | 17·5 | |
| | | 0·11 | | 0·1 | | 0·19 | | 1·4 | | 0·14 | | 0·5 |
| 22 | 52·04 | 0·07 | 18·5 | 0·2 | 50·99 | 0·15 | 70·9 | 1·6 | 55·40 | 0·11 | 17·0 | 0·6 |
| or. 1 | 51·97 | 0·04 | 18·7 | 0·5 | 50·84 | 0·09 | 69·3 | 1·7 | 55·29 | 0·08 | 16·4 | 0·5 |
| 11 | 51·93 | 0·00 | 19·2 | 0·7 | 50·75 | 0·03 | 67·6 | 1·7 | 55·21 | 0·03 | 15·9 | 0·5 |
| 21 | 51·93 | | 19·9 | | 50·72 | | 65·9 | | 55·18 | | 15·4 | |
| | | 0·05 | | 0·9 | | 0·04 | | 1·7 | | 0·01 | | 0·3 |
| ay 1 | 51·98 | 0·11 | 20·8 | 1·1 | 50·76 | 0·12 | 64·2 | 1·7 | 55·19 | 0·06 | 15·1 | 0·2 |
| 11 | *52·09 | 0·14 | 21·9 | 1·3 | *50·88 | 0·18 | 62·5 | 1·4 | 55·25 | 0·13 | 14·9 | 0·1 |
| 21 | 52·23 | 0·18 | 23·2 | 1·5 | 51·06 | 0·24 | 61·1 | 1·2 | *55·38 | 0·16 | 14·8 | 0·2 |
| 31 | 52·41 | | 24·7 | | 51·30 | | 59·9 | | 55·54 | | 15·0 | |
| | | 0·22 | | 1·6 | | 0·31 | | 0·8 | | 0·21 | | 0·4 |
| ne 10 | 52·63 | 0·26 | 26·3 | 1·7 | 51·61 | 0·35 | 59·1 | 0·6 | 55·75 | 0·25 | 15·4 | 0·5 |
| 20 | 52·89 | 0·28 | 28·0 | 1·8 | 51·96 | 0·39 | 58·5 | 0·2 | 56·00 | 0·28 | 15·9 | 0·8 |
| 30 | 53·17 | 0·30 | 29·8 | 1·8 | 52·35 | 0·42 | 58·3 | 0·1 | 56·28 | 0·31 | 16·7 | 0·9 |
| ly 10 | 53·47 | | 31·6 | | 52·77 | | 58·4 | | 56·59 | | 17·6 | |
| | | 0·31 | | 1·8 | | 0·44 | | 0·4 | | 0·32 | | 0·9 |
| 20 | 53·78 | 0·32 | 33·4 | 1·7 | 53·21 | 0·45 | 58·8 | 0·7 | 56·91 | 0·34 | 18·5 | 1·2 |
| 30 | 54·10 | 0·31 | 35·1 | 1·6 | 53·66 | 0·45 | 59·5 | 1·0 | 57·25 | 0·34 | 19·7 | 1·2 |
| ug. 9 | 54·41 | 0·30 | 36·7 | 1·4 | 54·11 | 0·45 | 60·5 | 1·4 | 57·59 | 0·34 | 20·9 | 1·2 |
| 19 | 54·71 | | 38·1 | | 54·56 | | 61·9 | | 57·93 | | 22·1 | |
| | | 0·30 | | 1·2 | | 0·44 | | 1·5 | | 0·33 | | 1·2 |
| 29 | 55·01 | 0·27 | 39·3 | 0·9 | 55·00 | 0·41 | 63·4 | 1·7 | 58·26 | 0·32 | 23·3 | 1·2 |
| pt. 8 | 55·28 | 0·25 | 40·2 | 0·7 | 55·41 | 0·39 | 65·1 | 2·0 | 58·58 | 0·30 | 24·5 | 1·1 |
| 18 | 55·53 | 0·23 | 40·9 | 0·5 | 55·80 | 0·35 | 67·1 | 2·0 | 58·88 | 0·28 | 25·6 | 1·1 |
| 28 | 55·76 | | 41·4 | | 56·15 | | 69·1 | | 59·16 | | 26·7 | |
| | | 0·20 | | 0·2 | | 0·33 | | 2·1 | | 0·26 | | 0·9 |
| ct. 8 | 55·96 | 0·17 | 41·6 | 0·1 | 56·48 | 0·28 | 71·2 | 2·2 | 59·42 | 0·23 | 27·6 | 0·9 |
| 18 | 56·13 | 0·14 | 41·5 | 0·2 | 56·76 | 0·24 | 73·4 | 2·2 | 59·65 | 0·21 | 28·5 | 0·7 |
| 28 | 56·27 | 0·12 | 41·3 | 0·5 | 57·00 | 0·20 | 75·6 | 2·2 | 59·86 | 0·18 | 29·2 | 0·6 |
| ov. 7 | 56·39 | | 40·8 | | 57·20 | | 77·8 | | 60·04 | | 29·8 | |
| | | 0·08 | | 0·5 | | 0·15 | | 2·1 | | 0·15 | | 0·6 |
| 17 | 56·47 | 0·06 | 40·3 | 0·7 | 57·35 | 0·10 | 79·9 | 2·0 | 60·19 | 0·11 | 30·4 | 0·5 |
| 27 | 56·53 | 0·01 | 39·6 | 0·7 | 57·45 | 0·04 | 81·9 | 1·9 | 60·30 | 0·07 | 30·9 | 0·3 |
| ec. 7 | 56·54 | 0·00 | 38·9 | 0·8 | 57·49 | 0·01 | 83·8 | 1·7 | 60·37 | 0·04 | 31·2 | 0·3 |
| 17 | 56·54 | | 38·1 | | 57·48 | | 85·5 | | 60·41 | | 31·5 | |
| | | 0·04 | | 0·7 | | 0·06 | | 1·4 | | 0·00 | | 0·2 |
| 27 | 56·50 | 0·07 | 37·4 | 0·7 | 57·42 | 0·11 | 86·9 | 1·1 | 60·41 | 0·04 | 31·7 | 0·1 |
| 37 | 56·43 | | 36·7 | | 57·31 | | 88·0 | | 60·37 | | 31·8 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | $\gamma^1$ Eridani. | | | | α Tauri. (*Aldebaran*) | | | | α Aurigæ. (*Capella*) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *South.* | | R. A. | | Dec. *North.* | | R. A. | | Dec. |
| | h m | | ° ′ | | h m | | ° ′ | | h m | | ° |
| | 3 50 | | 13 57 | | 4 26 | | 16 10 | | 5 4 | | 45 |
| | s | | ″ | | s | | ″ | | s | | ″ |
| Jan. 1 | 32·38 | | 71·1 | | 42·51 | | 58·6 | | 49·98 | | 51 |
| | | 0·07 | | 1·4 | | 0·02 | | 0·3 | | 0·01 | |
| 11 | 32·31 | | 72·5 | | 42·49 | | 58·3 | | 49·97 | | 52 |
| | | 0·10 | | 1·1 | | 0·06 | | 0·2 | | 0·06 | |
| 21 | 32·21 | | 73·6 | | 42·43 | | 58·1 | | 49·91 | | 53 |
| | | 0·13 | | 0·9 | | 0·10 | | 0·2 | | 0·11 | |
| 31 | 32·08 | | 74·5 | | 42·33 | | 57·9 | | 49·80 | | 54 |
| | | 0·15 | | 0·6 | | 0·12 | | 0·3 | | 0·17 | |
| Feb. 10 | 31·93 | | 75·1 | | 42·21 | | 57·6 | | 49·63 | | 55 |
| | | 0·16 | | 0·3 | | 0·15 | | 0·2 | | 0·20 | |
| 20 | 31·77 | | 75·4 | | 42·06 | | 57·4 | | 49·43 | | 56 |
| | | 0·17 | | 0·1 | | 0·16 | | 0·3 | | 0·22 | |
| Mar. 2 | 31·60 | | 75·5 | | 41·90 | | 57·1 | | 49·21 | | 56 |
| | | 0·16 | | 0·3 | | 0·17 | | 0·2 | | 0·24 | |
| 12 | 31·44 | | 75·2 | | 41·73 | | 56·9 | | 48·97 | | 56 |
| | | 0·15 | | 0·6 | | 0·15 | | 0·2 | | 0·24 | |
| 22 | 31·29 | | 74·6 | | 41·58 | | 56·7 | | 48·73 | | 55 |
| | | 0·13 | | 0·9 | | 0·14 | | 0·2 | | 0·21 | |
| Apr. 1 | 31·16 | | 73·7 | | 41·44 | | 56·5 | | 48·52 | | 55 |
| | | 0·10 | | 1·1 | | 0·10 | | 0·2 | | 0·19 | |
| 11 | 31·06 | | 72·6 | | 41·34 | | 56·3 | | 48·33 | | 54 |
| | | 0·06 | | 1·4 | | 0·08 | | 0·0 | | 0·14 | |
| 21 | 31·00 | | 71·2 | | 41·26 | | 56·3 | | 48·19 | | 53 |
| | | 0·02 | | 1·7 | | 0·03 | | 0·0 | | 0·09 | |
| May 1 | 30·98 | | 69·5 | | 41·23 | | 56·3 | | 48·10 | | 51 |
| | | 0·03 | | 1·8 | | 0·02 | | 0·2 | | 0·04 | |
| 11 | 31·01 | | 67·7 | | 41·25 | | 56·5 | | 48·06 | | 50 |
| | | 0·07 | | 2·1 | | 0·06 | | 0·2 | | 0·02 | |
| 21 | *31·08 | | 65·6 | | 41·31 | | 56·7 | | 48·08 | | 49 |
| | | 0·13 | | 2·4 | | 0·11 | | 0·5 | | 0·09 | |
| 31 | 31·21 | | 63·2 | | *41·42 | | 57·2 | | 48·17 | | 47 |
| | | 0·16 | | 2·3 | | 0·16 | | 0·6 | | 0·17 | |
| June 10 | 31·37 | | 60·9 | | 41·58 | | 57·8 | | 48·34 | | 46 |
| | | 0·21 | | 2·4 | | 0·20 | | 0·8 | | 0·21 | |
| 20 | 31·58 | | 58·5 | | 41·78 | | 58·6 | | 48·55 | | 45 |
| | | 0·23 | | 2·3 | | 0·23 | | 0·8 | | 0·26 | |
| 30 | 31·81 | | 56·2 | | 42·01 | | 59·4 | | 48·81 | | 44 |
| | | 0·26 | | 2·2 | | 0·26 | | 0·9 | | 0·30 | |
| July 10 | 32·07 | | 54·0 | | 42·27 | | 60·3 | | 49·11 | | 43 |
| | | 0·28 | | 2·1 | | 0·29 | | 1·0 | | 0·35 | |
| 20 | 32·35 | | 51·9 | | 42·56 | | 61·3 | | 49·46 | | 43 |
| | | 0·30 | | 1·9 | | 0·30 | | 1·0 | | 0·38 | |
| 30 | 32·65 | | 50·0 | | 42·86 | | 62·3 | | 49·84 | | 42 |
| | | 0·31 | | 1·7 | | 0·31 | | 1·1 | | 0·39 | |
| Aug. 9 | 32·96 | | 48·3 | | 43·17 | | 63·4 | | 50·23 | | 42 |
| | | 0·30 | | 1·2 | | 0·32 | | 0·9 | | 0·42 | |
| 19 | 33·26 | | 47·1 | | 43·49 | | 64·3 | | 50·65 | | 42 |
| | | 0·31 | | 1·0 | | 0·32 | | 0·9 | | 0·42 | |
| 29 | 33·57 | | 46·1 | | 43·81 | | 65·2 | | 51·07 | | 42 |
| | | 0·29 | | 0·5 | | 0·32 | | 0·8 | | 0·43 | |
| Sept. 8 | 33·86 | | 45·6 | | 44·13 | | 66·0 | | 51·50 | | 42 |
| | | 0·28 | | 0·2 | | 0·30 | | 0·7 | | 0·43 | |
| 18 | 34·14 | | 45·4 | | 44·43 | | 66·7 | | 51·93 | | 43 |
| | | 0·26 | | 0·3 | | 0·30 | | 0·5 | | 0·42 | |
| 28 | 34·40 | | 45·7 | | 44·73 | | 67·2 | | 52·35 | | 44 |
| | | 0·24 | | 0·6 | | 0·28 | | 0·4 | | 0·40 | |
| Oct. 8 | 34·64 | | 46·3 | | 45·01 | | 67·6 | | 52·75 | | 44 |
| | | 0·22 | | 1·0 | | 0·26 | | 0·3 | | 0·39 | |
| 18 | 34·86 | | 47·3 | | 45·27 | | 67·9 | | 53·14 | | 45 |
| | | 0·18 | | 1·3 | | 0·25 | | 0·1 | | 0·37 | |
| 28 | 35·04 | | 48·6 | | 45·52 | | 68·0 | | 53·51 | | 47 |
| | | 0·16 | | 1·5 | | 0·21 | | 0·0 | | 0·33 | |
| Nov. 7 | 35·20 | | 50·1 | | 45·73 | | 68·0 | | 53·84 | | 48 |
| | | 0·13 | | 1·7 | | 0·19 | | 0·1 | | 0·30 | |
| 17 | 35·33 | | 51·8 | | 45·92 | | 67·9 | | 54·14 | | 49 |
| | | 0·10 | | 1·8 | | 0·16 | | 0·2 | | 0·25 | |
| 27 | 35·43 | | 53·6 | | 46·08 | | 67·7 | | 54·39 | | 50 |
| | | 0·05 | | 1·8 | | 0·11 | | 0·2 | | 0·21 | |
| Dec. 7 | 35·48 | | 55·4 | | 46·19 | | 67·5 | | 54·60 | | 52 |
| | | 0·03 | | 1·8 | | 0·09 | | 0·2 | | 0·16 | |
| 17 | 35·51 | | 57·2 | | 46·28 | | 67·3 | | 54·76 | | 53 |
| | | 0·02 | | 1·7 | | 0·03 | | 0·3 | | 0·10 | |
| 27 | 35·49 | | 58·9 | | 46·31 | | 67·0 | | 54·86 | | 55 |
| | | 0·05 | | 1·5 | | 0·00 | | 0·2 | | 0·02 | |
| 37 | 35·44 | | 60·4 | | 46·31 | | 66·8 | | 54·88 | | 56 |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | β Orionis. (*Rigel*) R. A. | | Dec. *South.* | | β Tauri. R. A. | | Dec. *North.* | | δ Orionis. R. A. | | Dec. *South.* | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | h m 5 6 | | ° ′ 8 23 | | h m 5 16 | | ° ′ 28 28 | | h m 5 23 | | ° ′ 0 25 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| Jan. 1 | 49·54 | | 28·1 | | 8·62 | | 5·1 | | 48·45 | | 19·3 | |
| | | 0·01 | | 1·5 | | 0·02 | | 0·4 | | 0·01 | | 1·2 |
| 11 | 49·53 | | 29·6 | | 8·64 | | 5·5 | | 48·46 | | 20·5 | |
| | | 0·04 | | 1·3 | | 0·03 | | 0·4 | | 0·02 | | 1·0 |
| 21 | 49·49 | | 30·9 | | 8·61 | | 5·9 | | 48·44 | | 21·5 | |
| | | 0·09 | | 1·2 | | 0·07 | | 0·3 | | 0·07 | | 0·9 |
| 31 | 49·40 | | 32·1 | | 8·54 | | 6·2 | | 48·37 | | 22·4 | |
| | | 0·12 | | 0·9 | | 0·11 | | 0·3 | | 0·10 | | 0·7 |
| Feb. 10 | 49·28 | | 33·0 | | 8·43 | | 6·5 | | 48·27 | | 23·1 | |
| | | 0·14 | | 0·6 | | 0·15 | | 0·1 | | 0·14 | | 0·6 |
| 20 | 49·14 | | 33·6 | | 8·28 | | 6·6 | | 48·13 | | 23·7 | |
| | | 0·17 | | 0·4 | | 0·17 | | 0·1 | | 0·15 | | 0·4 |
| Mar. 2 | 48·97 | | 34·0 | | 8·11 | | 6·7 | | 47·98 | | 24·1 | |
| | | 0·17 | | 0·1 | | 0·18 | | 0·1 | | 0·16 | | 0·1 |
| 12 | 48·80 | | 34·1 | | 7·93 | | 6·6 | | 47·82 | | 24·2 | |
| | | 0·17 | | 0·1 | | 0·18 | | 0·2 | | 0·17 | | 0·0 |
| 22 | 48·63 | | 34·0 | | 7·75 | | 6·4 | | 47·65 | | 24·2 | |
| | | 0·16 | | 0·4 | | 0·17 | | 0·3 | | 0·16 | | 0·2 |
| Apr. 1 | 48·47 | | 33·6 | | 7·58 | | 6·1 | | 47·49 | | 24·0 | |
| | | 0·14 | | 0·6 | | 0·15 | | 0·4 | | 0·14 | | 0·3 |
| 11 | 48·33 | | 33·0 | | 7·43 | | 5·7 | | 47·35 | | 23·7 | |
| | | 0·11 | | 0·8 | | 0·12 | | 0·5 | | 0·11 | | 0·5 |
| 21 | 48·22 | | 32·2 | | 7·31 | | 5·2 | | 47·24 | | 23·2 | |
| | | 0·07 | | 1·1 | | 0·07 | | 0·5 | | 0·08 | | 0·8 |
| May 1 | 48·15 | | 31·1 | | 7·24 | | 4·7 | | 47·16 | | 22·4 | |
| | | 0·04 | | 1·3 | | 0·03 | | 0·4 | | 0·04 | | 0·9 |
| 11 | 48·11 | | 29·8 | | 7·21 | | 4·3 | | 47·12 | | 21·5 | |
| | | 0·01 | | 1·5 | | 0·01 | | 0·5 | | 0·00 | | 1·0 |
| 21 | 48·12 | | 28·3 | | 7·22 | | 3·8 | | 47·12 | | 20·5 | |
| | | 0·05 | | 1·7 | | 0·07 | | 0·4 | | 0·04 | | 1·2 |
| 31 | 48·17 | | 26·6 | | 7·29 | | 3·4 | | 47·16 | | 19·3 | |
| | * | 0·10 | | 2·0 | | 0·12 | | 0·3 | | 0·08 | | 1·3 |
| June 10 | 48·27 | | 24·6 | | 7·41 | | 3·1 | | 47·24 | | 18·0 | |
| | | 0·14 | | 1·9 | | 0·18 | | 0·2 | | 0·14 | | 1·6 |
| 20 | 48·41 | | 22·7 | | *7·59 | | 2·9 | | *47·38 | | 16·4 | |
| | | 0·17 | | 2·0 | | 0·20 | | 0·1 | | 0·17 | | 1·5 |
| 30 | 48·58 | | 20·7 | | 7·79 | | 2·8 | | 47·55 | | 14·9 | |
| | | 0·21 | | 1·9 | | 0·25 | | 0·0 | | 0·20 | | 1·5 |
| July 10 | 48·79 | | 18·8 | | 8·04 | | 2·8 | | 47·75 | | 13·4 | |
| | | 0·24 | | 1·9 | | 0·27 | | 0·1 | | 0·22 | | 1·5 |
| 20 | 49·03 | | 16·9 | | 8·31 | | 2·9 | | 47·97 | | 11·9 | |
| | | 0·25 | | 1·7 | | 0·30 | | 0·3 | | 0·25 | | 1·4 |
| 30 | 49·28 | | 15·2 | | 8·61 | | 3·2 | | 48·22 | | 10·5 | |
| | | 0·28 | | 1·5 | | 0·32 | | 0·2 | | 0·27 | | 1·3 |
| Aug. 9 | 49·56 | | 13·7 | | 8·93 | | 3·4 | | 48·49 | | 9·2 | |
| | | 0·29 | | 1·3 | | 0·34 | | 0·4 | | 0·29 | | 1·1 |
| 19 | 49·85 | | 12·4 | | 9·27 | | 3·8 | | 48·78 | | 8·1 | |
| | | 0·29 | | 1·0 | | 0·34 | | 0·3 | | 0·29 | | 0·9 |
| 29 | 50·14 | | 11·4 | | 9·61 | | 4·1 | | 49·07 | | 7·2 | |
| | | 0·30 | | 0·7 | | 0·34 | | 0·4 | | 0·30 | | 0·6 |
| Sept. 8 | 50·44 | | 10·7 | | 9·95 | | 4·5 | | 49·37 | | 6·6 | |
| | | 0·29 | | 0·3 | | 0·35 | | 0·4 | | 0·29 | | 0·3 |
| 18 | 50·73 | | 10·4 | | 10·30 | | 4·9 | | 49·66 | | 6·3 | |
| | | 0·29 | | 0·0 | | 0·34 | | 0·4 | | 0·30 | | 0·0 |
| 28 | 51·02 | | 10·4 | | 10·64 | | 5·3 | | 49·96 | | 6·3 | |
| | | 0·28 | | 0·5 | | 0·33 | | 0·4 | | 0·29 | | 0·2 |
| Oct. 8 | 51·30 | | 10·9 | | 10·97 | | 5·7 | | 50·25 | | 6·5 | |
| | | 0·27 | | 0·7 | | 0·32 | | 0·3 | | 0·28 | | 0·6 |
| 18 | 51·57 | | 11·6 | | 11·29 | | 6·0 | | 50·53 | | 7·1 | |
| | | 0·25 | | 1·1 | | 0·31 | | 0·3 | | 0·26 | | 0·8 |
| 28 | 51·82 | | 12·7 | | 11·60 | | 6·3 | | 50·79 | | 7·9 | |
| | | 0·23 | | 1·4 | | 0·28 | | 0·4 | | 0·24 | | 1·1 |
| Nov. 7 | 52·05 | | 14·1 | | 11·88 | | 6·7 | | 51·03 | | 9·0 | |
| | | 0·20 | | 1·5 | | 0·25 | | 0·3 | | 0·23 | | 1·2 |
| 17 | 52·25 | | 15·6 | | 12·13 | | 7·0 | | 51·26 | | 10·2 | |
| | | 0·17 | | 1·8 | | 0·23 | | 0·3 | | 0·19 | | 1·3 |
| 27 | 52·42 | | 17·4 | | 12·36 | | 7·3 | | 51·45 | | 11·5 | |
| | | 0·14 | | 1·7 | | 0·18 | | 0·4 | | 0·16 | | 1·4 |
| Dec. 7 | 52·56 | | 19·1 | | 12·54 | | 7·7 | | 51·61 | | 12·9 | |
| | | 0·10 | | 1·8 | | 0·15 | | 0·4 | | 0·13 | | 1·4 |
| 17 | 52·66 | | 20·9 | | 12·69 | | 8·1 | | 51·74 | | 14·3 | |
| | | 0·06 | | 1·8 | | 0·10 | | 0·4 | | 0·08 | | 1·4 |
| 27 | 52·72 | | 22·7 | | 12·79 | | 8·5 | | 51·82 | | 15·7 | |
| | | 0·01 | | 1·6 | | 0·05 | | 0·4 | | 0·04 | | 1·3 |
| 37 | 52·73 | | 24·3 | | 12·84 | | 8·9 | | 51·86 | | 17·0 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | α Leporis. | | | | ε Orionis. | | | | α Columbæ. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. South. | | R. A. | | Dec. South. | | R. A. | | Dec. South. | |
| | h m 5 25 | | ° ′ 17 56 | | h m 5 28 | | ° ′ 1 18 | | h m 5 33 | | ° ′ 34 9 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| Jan. 1 | 39·34 | | 27·1 | | 4·16 | | 30·0 | | 51·00 | | 45·6 | |
| | | 0·00 | | 2·1 | | 0·02 | | 1·3 | | 0·03 | | 2·6 |
| 11 | 39·34 | | 29·2 | | 4·18 | | 31·3 | | 50·97 | | 48·2 | |
| | | 0·05 | | 1·8 | | 0·02 | | 1·1 | | 0·07 | | 2·4 |
| 21 | 39·29 | | 31·0 | | 4·16 | | 32·4 | | 50·90 | | 50·6 | |
| | | 0·09 | | 1·5 | | 0·07 | | 0·9 | | 0·13 | | 2·1 |
| 31 | 39·20 | | 32·5 | | 4·09 | | 33·3 | | 50·77 | | 52·7 | |
| | | 0·12 | | 1·2 | | 0·10 | | 0·8 | | 0·16 | | 1·7 |
| Feb. 10 | 39·08 | | 33·7 | | 3·99 | | 34·1 | | 50·61 | | 54·4 | |
| | | 0·15 | | 0·9 | | 0·13 | | 0·5 | | 0·19 | | 1·2 |
| 20 | 38·93 | | 34·6 | | 3·86 | | 34·6 | | 50·42 | | 55·6 | |
| | | 0·18 | | 0·6 | | 0·15 | | 0·4 | | 0·22 | | 0·8 |
| Mar. 2 | 38·75 | | 35·2 | | 3·71 | | 35·0 | | 50·20 | | 56·4 | |
| | | 0·18 | | 0·3 | | 0·17 | | 0·2 | | 0·24 | | 0·3 |
| 12 | 38·57 | | 35·5 | | 3·54 | | 35·2 | | 49·96 | | 56·7 | |
| | | 0·19 | | 0·1 | | 0·16 | | 0·0 | | 0·23 | | 0·1 |
| 22 | 38·38 | | 35·4 | | 3·38 | | 35·2 | | 49·73 | | 56·6 | |
| | | 0·18 | | 0·5 | | 0·16 | | 0·2 | | 0·23 | | 0·5 |
| Apr. 1 | 38·20 | | 34·9 | | 3·22 | | 35·0 | | 49·50 | | 56·1 | |
| | | 0·16 | | 0·8 | | 0·15 | | 0·3 | | 0·21 | | 1·0 |
| 11 | 38·04 | | 34·1 | | 3·07 | | 34·7 | | 49·29 | | 55·1 | |
| | | 0·14 | | 1·0 | | 0·11 | | 0·6 | | 0·18 | | 1·4 |
| 21 | 37·90 | | 33·1 | | 2·96 | | 34·1 | | 49·11 | | 53·7 | |
| | | 0·10 | | 1·3 | | 0·09 | | 0·7 | | 0·15 | | 1·7 |
| May 1 | 37·80 | | 31·8 | | 2·87 | | 33·4 | | 48·96 | | 52·0 | |
| | | 0·06 | | 1·6 | | 0·04 | | 1·0 | | 0·11 | | 2·1 |
| 11 | 37·74 | | 30·2 | | 2·83 | | 32·4 | | 48·85 | | 49·9 | |
| | | 0·02 | | 1·9 | | 0·01 | | 1·1 | | 0·06 | | 2·4 |
| 21 | 37·72 | | 28·3 | | 2·82 | | 31·3 | | 48·79 | | 47·5 | |
| | | 0·02 | | 2·0 | | 0·04 | | 1·2 | | 0·01 | | 2·6 |
| 31 | 37·74 | | 26·3 | | 2·86 | | 30·1 | | 48·78 | | 44·9 | |
| | | 0·06 | | 2·2 | | 0·08 | | 1·4 | | 0·03 | | 2·7 |
| June 10 | 37·80 | | 24·1 | | 2·94 | | 28·7 | | 48·81 | | 42·2 | |
| | | 0·12 | | 2·6 | | 0·13 | | 1·6 | | 0·09 | | 3·2 |
| 20 | *37·92 | | 21·5 | | *3·07 | | 27·1 | | *48·90 | | 39·0 | |
| | | 0·15 | | 2·3 | | 0·17 | | 1·4 | | 0·13 | | 2·9 |
| 30 | 38·07 | | 19·2 | | 3·24 | | 25·7 | | 49·03 | | 36·1 | |
| | | 0·19 | | 2·3 | | 0·19 | | 1·7 | | 0·18 | | 2·9 |
| July 10 | 38·26 | | 16·9 | | 3·43 | | 24·0 | | 49·21 | | 33·2 | |
| | | 0·22 | | 2·2 | | 0·23 | | 1·5 | | 0·21 | | 2·7 |
| 20 | 38·48 | | 14·7 | | 3·66 | | 22·5 | | 49·42 | | 30·5 | |
| | | 0·24 | | 2·0 | | 0·24 | | 1·4 | | 0·24 | | 2·5 |
| 30 | 38·72 | | 12·7 | | 3·90 | | 21·1 | | 49·66 | | 28·0 | |
| | | 0·27 | | 1·8 | | 0·27 | | 1·3 | | 0·27 | | 2·2 |
| Aug. 9 | 38·99 | | 10·9 | | 4·17 | | 19·8 | | 49·93 | | 25·8 | |
| | | 0·28 | | 1·5 | | 0·28 | | 1·1 | | 0·30 | | 1·9 |
| 19 | 39·27 | | 9·4 | | 4·45 | | 18·7 | | 50·23 | | 23·9 | |
| | | 0·29 | | 1·2 | | 0·29 | | 0·9 | | 0·31 | | 1·3 |
| 29 | 39·56 | | 8·2 | | 4·74 | | 17·8 | | 50·54 | | 22·6 | |
| | | 0·30 | | 0·7 | | 0·30 | | 0·6 | | 0·32 | | 0·9 |
| Sept. 8 | 39·86 | | 7·5 | | 5·04 | | 17·2 | | 50·86 | | 21·7 | |
| | | 0·30 | | 0·3 | | 0·29 | | 0·3 | | 0·33 | | 0·3 |
| 18 | 40·16 | | 7·2 | | 5·33 | | 16·9 | | 51·19 | | 21·4 | |
| | | 0·30 | | 0·1 | | 0·30 | | 0·0 | | 0·32 | | 0·2 |
| 28 | 40·46 | | 7·3 | | 5·63 | | 16·9 | | 51·51 | | 21·6 | |
| | | 0·29 | | 0·6 | | 0·29 | | 0·3 | | 0·32 | | 0·8 |
| Oct. 8 | 40·75 | | 7·9 | | 5·92 | | 17·2 | | 51·83 | | 22·4 | |
| | | 0·27 | | 1·0 | | 0·28 | | 0·6 | | 0·30 | | 1·3 |
| 18 | 41·02 | | 8·9 | | 6·20 | | 17·8 | | 52·13 | | 23·7 | |
| | | 0·27 | | 1·4 | | 0·26 | | 0·8 | | 0·29 | | 1·8 |
| 28 | 41·29 | | 10·3 | | 6·46 | | 18·6 | | 52·42 | | 25·5 | |
| | | 0·24 | | 1·8 | | 0·25 | | 1·1 | | 0·26 | | 2·2 |
| Nov. 7 | 41·53 | | 12·1 | | 6·71 | | 19·7 | | 52·68 | | 27·7 | |
| | | 0·21 | | 2·0 | | 0·23 | | 1·3 | | 0·23 | | 2·6 |
| 17 | 41·74 | | 14·1 | | 6·94 | | 21·0 | | 52·91 | | 30·3 | |
| | | 0·19 | | 2·2 | | 0·19 | | 1·4 | | 0·19 | | 2·8 |
| 27 | 41·93 | | 16·3 | | 7·13 | | 22·4 | | 53·10 | | 33·1 | |
| | | 0·15 | | 2·3 | | 0·16 | | 1·5 | | 0·14 | | 3·0 |
| Dec. 7 | 42·08 | | 18·6 | | 7·29 | | 23·9 | | 53·24 | | 36·1 | |
| | | 0·11 | | 2·3 | | 0·13 | | 1·4 | | 0·11 | | 3·1 |
| 17 | 42·19 | | 20·9 | | 7·42 | | 25·3 | | 53·35 | | 39·2 | |
| | | 0·06 | | 2·3 | | 0·09 | | 1·5 | | 0·05 | | 2·9 |
| 27 | 42·25 | | 23·2 | | 7·51 | | 26·8 | | 53·40 | | 42·1 | |
| | | 0·03 | | 2·2 | | 0·04 | | 1·3 | | 0·00 | | 2·8 |
| 37 | 42·28 | | 25·4 | | 7·55 | | 28·1 | | 53·40 | | 44·9 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | α Orionis. | | | | μ Geminorum. | | | | α Argus. (*Canopus*) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *North.* | | R. A. | | Dec. *South.* | |
| | h m 5 46 | | ° ′ 7 22 | | h m 6 13 | | ° ′ 22 35 | | h m 6 20 | | ° ′ 52 36 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| Jan. 1 | 28·84 | | 23·7 | | 14·72 | | 31·6 | | 25·03 | | 30·4 | |
| | | 0·05 | | 0·8 | | 0·08 | | 0·1 | | 0·03 | | 3·4 |
| 11 | 28·89 | | 22·9 | | 14·80 | | 31·7 | | 25·00 | | 33·8 | |
| | | 0·01 | | 0·8 | | 0·03 | | 0·0 | | 0·10 | | 3·1 |
| 21 | 28·88 | | 22·1 | | 14·83 | | 31·7 | | 24·90 | | 36·9 | |
| | | 0·04 | | 0·5 | | 0·02 | | 0·2 | | 0·17 | | 2·9 |
| 31 | 28·84 | | 21·6 | | 14·81 | | 31·9 | | 24·73 | | 39·8 | |
| | | 0·09 | | 0·5 | | 0·07 | | 0·2 | | 0·22 | | 2·4 |
| Feb. 10 | 28·75 | | 21·1 | | 14·74 | | 32·1 | | 24·51 | | 42·2 | |
| | | 0·12 | | 0·4 | | 0·11 | | 0·1 | | 0·27 | | 2·0 |
| 20 | 28·63 | | 20·7 | | 14·63 | | 32·2 | | 24·24 | | 44·2 | |
| | | 0·14 | | 0·3 | | 0·14 | | 0·2 | | 0·31 | | 1·5 |
| Mar. 2 | 28·49 | | 20·4 | | 14·49 | | 32·4 | | 23·93 | | 45·7 | |
| | | 0·16 | | 0·1 | | 0·16 | | 0·1 | | 0·34 | | 1·0 |
| 12 | 28·33 | | 20·3 | | 14·33 | | 32·5 | | 23·59 | | 46·7 | |
| | | 0·17 | | 0·0 | | 0·18 | | 0·1 | | 0·36 | | 0·5 |
| 22 | 28·16 | | 20·3 | | 14·15 | | 32·6 | | 23·23 | | 47·2 | |
| | | 0·16 | | 0·0 | | 0·17 | | 0·0 | | 0·35 | | 0·0 |
| Apr. 1 | 28·00 | | 20·3 | | 13·98 | | 32·6 | | 22·88 | | 47·2 | |
| | | 0·14 | | 0·2 | | 0·16 | | 0·1 | | 0·34 | | 0·6 |
| 11 | 27·86 | | 20·5 | | 13·82 | | 32·5 | | 22·54 | | 46·6 | |
| | | 0·12 | | 0·2 | | 0·14 | | 0·1 | | 0·32 | | 1·0 |
| 21 | 27·74 | | 20·7 | | 13·68 | | 32·4 | | 22·22 | | 45·6 | |
| | | 0·10 | | 0·4 | | 0·11 | | 0·1 | | 0·29 | | 1·6 |
| May 1 | 27·64 | | 21·1 | | 13·57 | | 32·3 | | 21·93 | | 44·0 | |
| | | 0·05 | | 0·5 | | 0·07 | | 0·1 | | 0·24 | | 1·9 |
| 11 | 27·59 | | 21·6 | | 13·50 | | 32·2 | | 21·69 | | 42·1 | |
| | | 0·01 | | 0·6 | | 0·03 | | 0·2 | | 0·19 | | 2·3 |
| 21 | 27·58 | | 22·2 | | 13·47 | | 32·0 | | 21·50 | | 39·8 | |
| | | 0·03 | | 0·8 | | 0·01 | | 0·1 | | 0·14 | | 2·7 |
| 31 | 27·61 | | 23·0 | | 13·48 | | 31·9 | | 21·36 | | 37·1 | |
| | | 0·07 | | 0·8 | | 0·06 | | 0·0 | | 0·08 | | 2·9 |
| June 10 | 27·68 | | 23·8 | | 13·54 | | 31·9 | | 21·28 | | 34·2 | |
| | | 0·12 | | 1·0 | | 0·10 | | 0·1 | | 0·02 | | 3·1 |
| 20 | *27 80 | | 24·8 | | 13·64 | | 31·8 | | 21·26 | | 31·1 | |
| | | 0·15 | | 1·0 | | 0·15 | | 0·0 | | 0·04 | | 3·5 |
| 30 | 27 95 | | 25·8 | | *13·79 | | 31·8 | | *21·30 | | 27·6 | |
| | | 0·19 | | 1·0 | | 0·18 | | 0·1 | | 0·11 | | 3·2 |
| July 10 | 28·14 | | 26·8 | | 13·97 | | 31·9 | | 21·41 | | 24·4 | |
| | | 0·22 | | 1·1 | | 0·22 | | 0·1 | | 0·17 | | 3·2 |
| 20 | 28·36 | | 27·9 | | 14·19 | | 32·0 | | 21·58 | | 21·2 | |
| | | 0·24 | | 1·0 | | 0·24 | | 0·1 | | 0·22 | | 3·0 |
| 30 | 28·60 | | 28·9 | | 14·43 | | 32·1 | | 21·80 | | 18·2 | |
| | | 0·26 | | 0·9 | | 0·27 | | 0·1 | | 0·26 | | 2·7 |
| Aug. 9 | 28·86 | | 29·8 | | 14·70 | | 32·2 | | 22·06 | | 15·5 | |
| | | 0·28 | | 0·8 | | 0·29 | | 0·1 | | 0·31 | | 2·3 |
| 19 | 29·14 | | 30·6 | | 14·99 | | 32·3 | | 22·37 | | 13·2 | |
| | | 0·29 | | 0·6 | | 0·30 | | 0·1 | | 0·35 | | 1·9 |
| 29 | 29·43 | | 31·2 | | 15·29 | | 32·4 | | 22·72 | | 11·3 | |
| | | 0·30 | | 0·5 | | 0·31 | | 0·0 | | 0·37 | | 1·3 |
| Sept. 8 | 29·73 | | 31·7 | | 15·60 | | 32·4 | | 23·09 | | 10·0 | |
| | | 0·30 | | 0·2 | | 0·33 | | 0·1 | | 0·40 | | 0·8 |
| 18 | 30·03 | | 31·9 | | 15·93 | | 32·3 | | 23·49 | | 9·2 | |
| | | 0·31 | | 0·0 | | 0·33 | | 0·1 | | 0·41 | | 0·2 |
| 28 | 30·34 | | 31·9 | | 16·26 | | 32·2 | | 23·90 | | 9·0 | |
| | | 0·30 | | 0·2 | | 0·33 | | 0·2 | | 0·41 | | 0·5 |
| Oct. 8 | 30·64 | | 31·7 | | 16·59 | | 32·0 | | 24·31 | | 9·5 | |
| | | 0·29 | | 0·4 | | 0·33 | | 0·3 | | 0·41 | | 1·1 |
| 18 | 30·93 | | 31·3 | | 16·92 | | 31·7 | | 24·72 | | 10·6 | |
| | | 0·29 | | 0·6 | | 0·32 | | 0·3 | | 0·38 | | 1·7 |
| 28 | 31·22 | | 30·7 | | 17·24 | | 31·4 | | 25·10 | | 12·3 | |
| | | 0·26 | | 0·8 | | 0·31 | | 0·3 | | 0·36 | | 2·3 |
| Nov. 7 | 31·48 | | 29·9 | | 17·55 | | 31·1 | | 25·46 | | 14·6 | |
| | | 0·25 | | 0·9 | | 0·29 | | 0·4 | | 0·32 | | 2·8 |
| 17 | 31·73 | | 29·0 | | 17·84 | | 30·7 | | 25·78 | | 17·4 | |
| | | 0·22 | | 1·0 | | 0·26 | | 0·3 | | 0·27 | | 3·1 |
| 27 | 31·95 | | 28·0 | | 18·10 | | 30·4 | | 26·05 | | 20·5 | |
| | | 0·18 | | 1·1 | | 0·23 | | 0·3 | | 0·21 | | 3·4 |
| Dec. 7 | 32·13 | | 26·9 | | 18·33 | | 30·1 | | 26·26 | | 23·9 | |
| | | 0·16 | | 1·0 | | 0·20 | | 0·2 | | 0·15 | | 3·6 |
| 17 | 32·29 | | 25·9 | | 18·53 | | 29·9 | | 26·41 | | 27·5 | |
| | | 0·11 | | 1·0 | | 0·16 | | 0·1 | | 0·08 | | 3·6 |
| 27 | 32·40 | | 24·9 | | 18·69 | | 29·8 | | 26·49 | | 31·1 | |
| | | 0·07 | | 0·9 | | 0·10 | | 0·0 | | 0·01 | | 3·5 |
| 37 | 32·47 | | 24·0 | | 18·79 | | 29·8 | | 26·50 | | 34·6 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STA
### FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | 51 (Hev.) Cephei. | | | | α Canis Majoris. (*Sirius*) | | | | ε Canis M | |
|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *South.* | | R. A. | |
| | h m 6 22 | | ° ′ 87 15 | | h m 6 38 | | ° ′ 16 29 | | h m 6 52 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s |
| Jan. 1 | 84·34 | 0·24 | 54·6 | 3·2 | 4·54 | 0·07 | 53·4 | 2·3 | 19·54 | 0·07 |
| 11 | 84·58 | 0·67 | 57·8 | 3·1 | 4·61 | 0·02 | 55·7 | 2·2 | 19·61 | 0·02 |
| 21 | 83·91 | 1·55 | 60·9 | 2·9 | 4·63 | 0·03 | 57·9 | 1·9 | 19·63 | 0·04 |
| 31 | 82·36 | | 63·8 | | 4·60 | | 59·8 | | 19·59 | |
| | | 2·32 | | 2·6 | | 0·07 | | 1·6 | | 0·09 |
| Feb. 10 | 80·04 | 3·03 | 66·4 | 2·2 | 4·53 | 0·12 | 61·4 | 1·4 | 19·50 | 0·12 |
| 20 | 77·01 | 3·58 | 68·6 | 1·6 | 4·41 | 0·14 | 62·8 | 1·0 | 19·38 | 0·16 |
| Mar. 2 | 73·43 | 3·96 | 70·2 | 1·1 | 4·27 | 0·17 | 63·8 | 0·7 | 19·22 | 0·19 |
| 12 | 69·47 | | 71·3 | | 4·10 | | 64·5 | | 19·03 | |
| | | 4·17 | | 0·6 | | 0·18 | | 0·4 | | 0·21 |
| 22 | 65·30 | 4·20 | 71·9 | 0·1 | 3·92 | 0·18 | 64·9 | 0·1 | 18·82 | 0·21 |
| Apr. 1 | 61·10 | 4·05 | 71·8 | 0·7 | 3·74 | 0·18 | 65·0 | 0·3 | 18·61 | 0·21 |
| 11 | 57·05 | 3·76 | 71·1 | 1·3 | 3·56 | 0·16 | 64·7 | 0·5 | 18·40 | 0·19 |
| 21 | 53·29 | | 69·8 | | 3·40 | | 64·2 | | 18·21 | |
| | | 3·30 | | 1·7 | | 0·14 | | 0·9 | | 0·17 |
| May 1 | 49·99 | 2·75 | 68·1 | 2·2 | 3·26 | 0·11 | 63·3 | 1·1 | 18·04 | 0·15 |
| 11 | 47·24 | 2·05 | 65·9 | 2·6 | 3·15 | 0·08 | 62·2 | 1·4 | 17·89 | 0·10 |
| 21 | 45·19 | 1·35 | 63·3 | 2·8 | 3·07 | 0·03 | 60·8 | 1·5 | 17·79 | 0·08 |
| 31 | 43·84 | | 60·5 | | 3·04 | | 59·3 | | 17·71 | |
| | | 0·55 | | 3·0 | | 0·00 | | 1·8 | | 0·03 |
| June 10 | 43·29 | 0·22 | 57·5 | 3·1 | 3·04 | 0·04 | 57·5 | 1·9 | 17·68 | 0·01 |
| 20 | 43·51 | 1·16 | 54·4 | 3·4 | 3·08 | 0·08 | 55·6 | 2·0 | 17·69 | 0·05 |
| 30 | *44·67 | 1·87 | 51·0 | 3·0 | 3·16 | 0·13 | 53·6 | 2·3 | 17·74 | 0·11 |
| July 10 | 46·54 | | 48·0 | | *3·29 | | 51·3 | | *17·85 | |
| | | 2·55 | | 2·8 | | 0·15 | | 2·0 | | 0·13 |
| 20 | 49·09 | 3·24 | 45·2 | 2·7 | 3·44 | 0·19 | 49·3 | 1·9 | 17·98 | 0·17 |
| 30 | 52·33 | 3·84 | 42·5 | 2·4 | 3·63 | 0·21 | 47·4 | 1·7 | 18·15 | 0·20 |
| Aug. 9 | 56·17 | 4·32 | 40·1 | 2·0 | 3·84 | 0·23 | 45·7 | 1·6 | 18·35 | 0·23 |
| 19 | 60·49 | | 38·1 | | 4·07 | | 44·1 | | 18·58 | |
| | | 4·77 | | 1·7 | | 0·26 | | 1·2 | | 0·25 |
| 29 | 65·26 | 5·12 | 36·4 | 1·3 | 4·33 | 0·27 | 42·9 | 0·8 | 18·83 | 0·28 |
| Sept. 8 | 70·38 | 5·34 | 35·1 | 0·8 | 4·60 | 0·29 | 42·1 | 0·4 | 19·11 | 0·30 |
| 18 | 75·72 | 5·49 | 34·3 | 0·4 | 4·89 | 0·30 | 41·7 | 0·0 | 19·41 | 0·31 |
| 28 | 81·21 | | 33·9 | | 5·19 | | 41·7 | | 19·72 | |
| | | 5·52 | | 0·0 | | 0·30 | | 0·4 | | 0·32 |
| Oct. 8 | 86·73 | 5·45 | 33·9 | 0·6 | 5·49 | 0·30 | 42·1 | 0·9 | 20·04 | 0·32 |
| 18 | 92·18 | 5·23 | 34·5 | 1·0 | 5·79 | 0·30 | 43·0 | 1·2 | 20·36 | 0·31 |
| 28 | 97·41 | 4·93 | 35·5 | 1·5 | 6·09 | 0·28 | 44·2 | 1·7 | 20·67 | 0·31 |
| Nov. 7 | 102·34 | | 37·0 | | 6·37 | | 45·9 | | 20·98 | |
| | | 4·49 | | 1·9 | | 0·27 | | 2·0 | | 0·29 |
| 17 | 106·83 | 3·91 | 38·9 | 2·4 | 6·64 | 0·25 | 47·9 | 2·2 | 21·27 | 0·26 |
| 27 | 110·74 | 3·22 | 41·3 | 2·7 | 6·89 | 0·21 | 50·1 | 2·4 | 21·53 | 0·23 |
| Dec. 7 | 113·96 | 2·50 | 44·0 | 2·9 | 7·10 | 0·19 | 52·5 | 2·5 | 21·76 | 0·19 |
| 17 | 116·46 | | 46·9 | | 7·29 | | 55·0 | | 21·95 | |
| | | 1·64 | | 3·1 | | 0·14 | | 2·5 | | 0·15 |
| 27 | 118·10 | 0·68 | 50·0 | 3·2 | 7·43 | 0·09 | 57·5 | 2·3 | 22·10 | 0·10 |
| 37 | 118·78 | | 53·2 | | 7·52 | | 59·8 | | 22·20 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | ζ Geminorum. | | | | α² Geminorum. (*Castor*) | | | | α Canis Minoris. (*Procyon*) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *North.* | | R. A. | | Dec. *North.* | |
| | h m<br>7 10 | | ° ′<br>22 16 | | h m<br>7 24 | | ° ′<br>32 14 | | h m<br>7 30 | | ° ′<br>5 37 | |
| | s | | ″ | | s | | ″ | | s | | ″ | |
| Jan. 1 | 31·82 | s<br>0·13 | 26·6 | ″<br>0·2 | 20·98 | s<br>0·16 | 10·7 | ″<br>0·4 | 53·79 | s<br>0·14 | 63·5 | ″<br>1·3 |
| 11 | 31·95 | 0·09 | 26·4 | 0·0 | 21·14 | 0·11 | 11·1 | 0·6 | 53·93 | 0·09 | 62·2 | 1·1 |
| 21 | 32·04 | 0·03 | 26·4 | 0·1 | 21·25 | 0·05 | 11·7 | 0·7 | 54·02 | 0·04 | 61·1 | 0·9 |
| 31 | 32·07 | | 26·5 | | 21·30 | | 12·4 | | 54·06 | | 60·2 | |
| | | 0·02 | | 0·2 | | 0·01 | | 0·7 | | 0·01 | | 0·8 |
| Feb. 10 | 32·05 | 0·07 | 26·7 | 0·3 | 21·29 | 0·06 | 13·1 | 0·7 | 54·05 | 0·05 | 59·4 | 0·6 |
| 20 | 31·98 | 0·10 | 27·0 | 0·3 | 21·23 | 0·11 | 13·8 | 0·8 | 54·00 | 0·09 | 58·8 | 0·4 |
| Mar. 2 | 31·88 | 0·14 | 27·3 | 0·3 | 21·12 | 0·14 | 14·6 | 0·7 | 53·91 | 0·12 | 58·4 | 0·2 |
| 12 | 31·74 | | 27·6 | | 20·98 | | 15·3 | | 53·79 | | 58·2 | |
| | | 0·16 | | 0·2 | | 0·17 | | 0·6 | | 0·14 | | 0·2 |
| 22 | 31·58 | 0·17 | 27·8 | 0·2 | 20·81 | 0·18 | 15·9 | 0·4 | 53·65 | 0·16 | 58·0 | 0·1 |
| Apr. 1 | 31·41 | 0·16 | 28·0 | 0·2 | 20·63 | 0·19 | 16·3 | 0·2 | 53·49 | 0·15 | 58·1 | 0·1 |
| 11 | 31·25 | 0·16 | 28·2 | 0·2 | 20·44 | 0·17 | 16·5 | 0·1 | 53·34 | 0·16 | 58·2 | 0·2 |
| 21 | 31·09 | | 28·4 | | 20·27 | | 16·6 | | 53·18 | | 58·4 | |
| | | 0·13 | | 0·0 | | 0·15 | | 0·1 | | 0·13 | | 0·3 |
| May 1 | 30·96 | 0·11 | 28·4 | 0·0 | 20·12 | 0·13 | 16·5 | 0·2 | 53·05 | 0·11 | 58·7 | 0·5 |
| 11 | 30·85 | 0·07 | 28·4 | 0·0 | 19·99 | 0·09 | 16·3 | 0·4 | 52·94 | 0·08 | 59·2 | 0·4 |
| 21 | 30·78 | 0·04 | 28·4 | 0·1 | 19·90 | 0·05 | 15·9 | 0·4 | 52·86 | 0·05 | 59·6 | 0·6 |
| 31 | 30·74 | | 28·3 | | 19·85 | | 15·5 | | 52·81 | | 60·2 | |
| | | 0·01 | | 0·1 | | 0·01 | | 0·6 | | 0·02 | | 0·7 |
| June 10 | 30·75 | 0·04 | 28·2 | 0·1 | 19·84 | 0·03 | 14·9 | 0·7 | 52·79 | 0·02 | 60·9 | 0·7 |
| 20 | 30·79 | 0·09 | 28·1 | 0·2 | 19·87 | 0·08 | 14·2 | 0·7 | 52·81 | 0·05 | 61·6 | 0·7 |
| 30 | 30·88 | 0·12 | 27·9 | 0·1 | 19·95 | 0·11 | 13·5 | 0·8 | 52·86 | 0·09 | 62·3 | 0·7 |
| July 10 | *31·00 | | 27·8 | | 20·06 | | 12·7 | | 52·95 | | 63·0 | |
| | | 0·17 | | 0·1 | * | 0·16 | | 0·8 | * | 0·13 | | 0·8 |
| 20 | 31·17 | 0·19 | 27·7 | 0·2 | 20·22 | 0·20 | 11·9 | 0·8 | 53·08 | 0·15 | 63·8 | 0·7 |
| 30 | 31·36 | 0·22 | 27·5 | 0·2 | 20·42 | 0·23 | 11·1 | 0·8 | 53·23 | 0·18 | 64·5 | 0·6 |
| Aug. 9 | 31·58 | 0·25 | 27·3 | 0·3 | 20·65 | 0·25 | 10·3 | 0·8 | 53·41 | 0·21 | 65·1 | 0·4 |
| 19 | 31·83 | | 27·0 | | 20·90 | | 9·5 | | 53·62 | | 65·5 | |
| | | 0·26 | | 0·3 | | 0·28 | | 0·9 | | 0·23 | | 0·3 |
| 29 | 32·09 | 0·29 | 26·7 | 0·4 | 21·18 | 0·31 | 8·6 | 0·8 | 53·85 | 0·25 | 65·8 | 0·1 |
| Sept. 8 | 32·38 | 0·30 | 26·3 | 0·4 | 21·49 | 0·32 | 7·8 | 0·9 | 54·10 | 0·26 | 65·9 | 0·1 |
| 18 | 32·68 | 0·32 | 25·9 | 0·6 | 21·81 | 0·34 | 6·9 | 0·8 | 54·36 | 0·27 | 65·8 | 0·3 |
| 28 | 33·00 | | 25·3 | | 22·15 | | 6·1 | | 54·63 | | 65·5 | |
| | | 0·33 | | 0·6 | | 0·35 | | 0·8 | | 0·30 | | 0·7 |
| Oct. 8 | 33·33 | 0·33 | 24·7 | 0·7 | 22·50 | 0·37 | 5·3 | 0·8 | 54·93 | 0·32 | 64·8 | 0·8 |
| 18 | 33·66 | 0·34 | 24·0 | 0·8 | 22·87 | 0·36 | 4·5 | 0·8 | 55·25 | 0·31 | 64·0 | 1·1 |
| 28 | 34·00 | 0·33 | 23·2 | 0·8 | 23·23 | 0·37 | 3·7 | 0·6 | 55·56 | 0·31 | 62·9 | 1·2 |
| Nov. 7 | 34·33 | | 22·4 | | 23·60 | | 3·1 | | 55·87 | | 61·7 | |
| | | 0·33 | | 0·7 | | 0·36 | | 0·6 | | 0·31 | | 1·5 |
| 17 | 34·66 | 0·31 | 21·7 | 0·7 | 23·96 | 0·34 | 2·5 | 0·4 | 56·18 | 0·29 | 60·2 | 1·5 |
| 27 | 34·97 | 0·27 | 21·0 | 0·7 | 24·30 | 0·31 | 2·1 | 0·2 | 56·47 | 0·27 | 58·7 | 1·5 |
| Dec. 7 | 35·24 | 0·25 | 20·3 | 0·5 | 24·61 | 0·29 | 1·9 | 0·0 | 56·74 | 0·25 | 57·2 | 1·6 |
| 17 | 35·49 | | 19·8 | | 24·90 | | 1·9 | | 56·99 | | 55·6 | |
| | | 0·21 | | 0·4 | | 0·24 | | 0·1 | | 0·20 | | 1·5 |
| 27 | 35·70 | 0·17 | 19·4 | 0·2 | 25·14 | 0·20 | 2·0 | 0·3 | 57·19 | 0·17 | 54·1 | 1·3 |
| 37 | 35·87 | | 19·2 | | 25·34 | | 2·3 | | 57·36 | | 52·8 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | β Geminorum. (*Pollux*) | | | | 15 Argus. | | | | ε Hydræ. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *South.* | | R. A. | | Dec. |
| | h m 7 35 | | ° ′ 28 24 | | h m 8 0 | | ° ′ 23 50 | | h m 8 38 | | ° 7 |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ |
| Jan. 1 | 29·07 | 0·17 | 37·8 | 0·1 | 42·73 | 0·15 | 29·3 | 2·8 | 16·23 | 0·20 | 23· |
| 11 | 29·24 | 0·12 | 37·9 | 0·3 | 42·88 | 0·10 | 32·1 | 2·8 | 16·43 | 0·16 | 21· |
| 21 | 29·36 | 0·06 | 38·2 | 0·5 | 42·98 | 0·04 | 34·9 | 2·6 | 16·59 | 0·11 | 20· |
| 31 | 29·42 | | 38·7 | | 43·02 | | 37·5 | | 16·70 | | 19· |
| | | 0·00 | | 0·5 | | 0·00 | | 2·4 | | 0·06 | |
| Feb. 10 | 29·42 | 0·05 | 39·2 | 0·6 | 43·02 | 0·06 | 39·9 | 2·1 | 16·76 | 0·01 | 18· |
| 20 | 29·37 | 0·09 | 39·8 | 0·7 | 42·96 | 0·10 | 42·0 | 1·7 | 16·77 | 0·04 | 18· |
| Mar. 2 | 29·28 | 0·14 | 40·5 | 0·6 | 42·86 | 0·13 | 43·7 | 1·4 | 16·73 | 0·07 | 17· |
| 12 | 29·14 | | 41·1 | | 42·73 | | 45·1 | | 16·66 | | 17· |
| | | 0·15 | | 0·5 | | 0·16 | | 1·1 | | 0·10 | |
| 22 | 28·99 | 0·18 | 41·6 | 0·4 | 42·57 | 0·17 | 46·2 | 0·7 | 16·56 | 0·13 | 17· |
| Apr. 1 | 28·81 | 0·17 | 42·0 | 0·3 | 42·40 | 0·19 | 46·9 | 0·4 | 16·43 | 0·14 | 17· |
| 11 | 28·64 | 0·17 | 42·3 | 0·2 | 42·21 | 0·18 | 47·3 | 0·1 | 16·29 | 0·14 | 17· |
| 21 | 28·47 | | 42·5 | | 42·03 | | 47·2 | | 16·15 | | 17· |
| | | 0·15 | | 0·0 | | 0·17 | | 0·3 | | 0·13 | |
| May 1 | 28·32 | 0·12 | 42·5 | 0·0 | 41·86 | 0·15 | 46·9 | 0·7 | 16·02 | 0·13 | 18· |
| 11 | 28·20 | 0·10 | 42·5 | 0·2 | 41·71 | 0·13 | 46·2 | 1·1 | 15·89 | 0·10 | 18· |
| 21 | 28·10 | 0·06 | 42·3 | 0·3 | 41·58 | 0·10 | 45·1 | 1·3 | 15·79 | 0·09 | 19· |
| 31 | 28·04 | | 42·0 | | 41·48 | | 43·8 | | 15·70 | | 19· |
| | | 0·02 | | 0·4 | | 0·07 | | 1·6 | | 0·05 | |
| June 10 | 28·02 | 0·02 | 41·6 | 0·5 | 41·41 | 0·04 | 42·2 | 1·8 | 15·65 | 0·03 | 20· |
| 20 | 28·04 | 0·07 | 41·1 | 0·5 | 41·37 | 0·00 | 40·4 | 1·9 | 15·62 | 0·00 | 20· |
| 30 | 28·11 | 0·10 | 40·6 | 0·5 | 41·37 | 0·03 | 38·5 | 2·1 | 15·62 | 0·03 | 21· |
| July 10 | 28·21 | | 40·1 | | 41·40 | | 36·4 | | 15·65 | | 21· |
| | * | 0·15 | | 0·7 | | 0·07 | | 2·1 | | 0·06 | |
| 20 | 28·36 | 0·17 | 39·4 | 0·6 | *41·47 | 0·11 | 34·3 | 2·4 | 15·71 | 0·09 | 22· |
| 30 | 28·53 | 0·20 | 38·8 | 0·7 | 41·58 | 0·13 | 31·9 | 2·0 | 15·80 | 0·13 | 22· |
| Aug. 9 | 28·73 | 0·24 | 38·1 | 0·7 | 41·71 | 0·17 | 29·9 | 1·8 | *15·93 | 0·15 | 23· |
| 19 | 28·97 | | 37·4 | | 41·88 | | 28·1 | | 16·08 | | 23· |
| | | 0·26 | | 0·7 | | 0·20 | | 1·6 | | 0·17 | |
| 29 | 29·23 | 0·28 | 36·7 | 0·8 | 42·08 | 0·23 | 26·5 | 1·2 | 16·25 | 0·20 | 23· |
| Sept. 8 | 29·51 | 0·30 | 35·9 | 0·8 | 42·31 | 0·25 | 25·3 | 0·9 | 16·45 | 0·23 | 23· |
| 18 | 29·81 | 0·32 | 35·1 | 0·9 | 42·56 | 0·28 | 24·4 | 0·4 | 16·68 | 0·25 | 22· |
| 28 | 30·13 | | 34·2 | | 42·84 | | 24·0 | | 16·93 | | 22· |
| | | 0·34 | | 0·9 | | 0·30 | | 0·0 | | 0·27 | |
| Oct. 8 | 30·47 | 0·34 | 33·3 | 0·9 | 43·14 | 0·31 | 24·0 | 0·5 | 17·20 | 0·30 | 21 |
| 18 | 30·81 | 0·36 | 32·4 | 0·9 | 43·45 | 0·32 | 24·5 | 1·0 | 17·50 | 0·31 | 20 |
| 28 | 31·17 | 0·36 | 31·5 | 0·8 | 43·77 | 0·32 | 25·5 | 1·5 | 17·81 | 0·32 | 19 |
| Nov. 7 | 31·53 | | 30·7 | | 44·09 | | 27·0 | | 18·13 | | 17 |
| | | 0·35 | | 0·8 | | 0·32 | | 1·9 | | 0·33 | |
| 17 | 31·88 | 0·33 | 29·9 | 0·6 | 44·41 | 0·31 | 28·9 | 2·3 | 18·46 | 0·32 | 16 |
| 27 | 32·21 | 0·31 | 29·3 | 0·5 | 44·72 | 0·29 | 31·2 | 2·6 | 18·78 | 0·31 | 14 |
| Dec. 7 | 32·52 | 0·29 | 28·8 | 0·4 | 45·01 | 0·25 | 33·8 | 2·7 | 19·09 | 0·29 | 12 |
| 17 | 32·81 | | 28·4 | | 45·26 | | 36·5 | | 19·38 | | 10 |
| | | 0·24 | | 0·1 | | 0·22 | | 2·9 | | 0·27 | |
| | 33·05 | 0·20 | 28·3 | 0·0 | 45·48 | 0·18 | 39·4 | 3·0 | 19·65 | 0·22 | 9 |
| | 33·25 | | 28·3 | | 45·66 | | 42·4 | | 19·87 | | 7 |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | ι Ursæ Majoris. | | | | ι Argus. | | | | α Hydræ. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *South.* | | R. A. | | Dec. *South.* | |
| | h m<br>8 48 | | ° ′<br>48 39 | | h m<br>9 12 | | ° ′<br>58 35 | | h m<br>9 19 | | ° ′<br>7 57 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| Jan. 1 | 11·25 | | 65·0 | | 48·29 | | 49·7 | | 41·66 | | 43·9 | |
| | | 0·30 | | 1·0 | | 0·27 | | 3·7 | | 0·23 | | 2·3 |
| 11 | 11·55 | | 66·0 | | 48·56 | | 53·4 | | 41·89 | | 46·2 | |
| | | 0·23 | | 1·2 | | 0·20 | | 3·8 | | 0·19 | | 2·2 |
| 21 | 11·78 | | 67·2 | | 48·76 | | 57·2 | | 42·08 | | 48·4 | |
| | | 0·17 | | 1·5 | | 0·10 | | 3·8 | | 0·14 | | 2·0 |
| 31 | 11·95 | | 68·7 | | 48·86 | | 61·0 | | 42·22 | | 50·4 | |
| | | 0·09 | | 1·6 | | 0·03 | | 3·8 | | 0·09 | | 1·8 |
| Feb. 10 | 12·04 | | 70·3 | | 48·89 | | 64·8 | | 42·31 | | 52·2 | |
| | | 0·02 | | 1·8 | | 0·05 | | 3·6 | | 0·04 | | 1·5 |
| 20 | 12·06 | | 72·1 | | 48·84 | | 68·4 | | 42·35 | | 53·7 | |
| | | 0·05 | | 1·8 | | 0·13 | | 3·4 | | 0·00 | | 1·3 |
| Mar. 2 | 12·01 | | 73·9 | | 48·71 | | 71·8 | | 42·35 | | 55·0 | |
| | | 0·11 | | 1·6 | | 0·19 | | 3·1 | | 0·05 | | 1·1 |
| 12 | 11·90 | | 75·5 | | 48·52 | | 74·9 | | 42·30 | | 56·1 | |
| | | 0·16 | | 1·6 | | 0·25 | | 2·7 | | 0·07 | | 0·8 |
| 22 | 11·74 | | 77·1 | | 48·27 | | 77·6 | | 42·23 | | 56·9 | |
| | | 0·20 | | 1·3 | | 0·29 | | 2·3 | | 0·11 | | 0·5 |
| Apr. 1 | 11·54 | | 78·4 | | 47·98 | | 79·9 | | 42·12 | | 57·4 | |
| | | 0·22 | | 1·0 | | 0·32 | | 1·8 | | 0·12 | | 0·3 |
| 11 | 11·32 | | 79·4 | | 47·66 | | 81·7 | | 42·00 | | 57·7 | |
| | | 0·23 | | 0·8 | | 0·35 | | 1·4 | | 0·13 | | 0·1 |
| 21 | 11·09 | | 80·2 | | 47·31 | | 83·1 | | 41·87 | | 57·8 | |
| | | 0·23 | | 0·4 | | 0·35 | | 0·8 | | 0·13 | | 0·1 |
| May 1 | 10·86 | | 80·6 | | 46·96 | | 83·9 | | 41·74 | | 57·7 | |
| | | 0·22 | | 0·0 | | 0·36 | | 0·3 | | 0·13 | | 0·3 |
| 11 | 10·64 | | 80·6 | | 46·60 | | 84·2 | | 41·61 | | 57·4 | |
| | | 0·19 | | 0·3 | | 0·34 | | 0·2 | | 0·12 | | 0·5 |
| 21 | 10·45 | | 80·3 | | 46·26 | | 84·0 | | 41·49 | | 56·9 | |
| | | 0·16 | | 0·6 | | 0·32 | | 0·6 | | 0·10 | | 0·7 |
| 31 | 10·29 | | 79·7 | | 45·94 | | 83·4 | | 41·39 | | 56·2 | |
| | | 0·12 | | 0·9 | | 0·30 | | 1·2 | | 0·08 | | 0·8 |
| June 10 | 10·17 | | 78·8 | | 45·64 | | 82·2 | | 41·31 | | 55·4 | |
| | | 0·08 | | 1·2 | | 0·26 | | 1·6 | | 0·07 | | 0·9 |
| 20 | 10·09 | | 77·6 | | 45·38 | | 80·6 | | 41·24 | | 54·5 | |
| | | 0·03 | | 1·5 | | 0·21 | | 2·0 | | 0·03 | | 1·0 |
| 30 | 10·06 | | 76·1 | | 45·17 | | 78·6 | | 41·21 | | 53·5 | |
| | | 0·01 | | 1·7 | | 0·17 | | 2·4 | | 0·01 | | 1·2 |
| July 10 | 10·07 | | 74·4 | | 45·00 | | 76·2 | | 41·20 | | 52·3 | |
| | | 0·06 | | 1·8 | | 0·12 | | 2·6 | | 0·01 | | 1·1 |
| 20 | 10·13 | | 72·6 | | 44·88 | | 73·6 | | 41·21 | | 51·2 | |
| | | 0·10 | | 2·0 | | 0·05 | | 2·8 | | 0·04 | | 1·1 |
| 30 | 10·23 | | 70·6 | | 44·83 | | 70·8 | | 41·25 | | 50·1 | |
| | | 0·16 | | 2·2 | | 0·00 | | 2·9 | | 0·07 | | 1·1 |
| Aug. 9 | *10·39 | | 68·4 | | 44·83 | | 67·9 | | 41·32 | | 49·0 | |
| | | 0·20 | | 2·1 | | 0·08 | | 3·3 | | 0·11 | | 1·1 |
| 19 | 10·59 | | 66·3 | | *44·91 | | 64·6 | | *41·43 | | 47·9 | |
| | | 0·24 | | 2·2 | | 0·15 | | 2·8 | | 0·12 | | 0·8 |
| 29 | 10·83 | | 64·1 | | 45·06 | | 61·8 | | 41·55 | | 47·1 | |
| | | 0·28 | | 2·1 | | 0·21 | | 2·5 | | 0·16 | | 0·5 |
| Sept. 8 | 11·11 | | 62·0 | | 45·27 | | 59·3 | | 41·71 | | 46·6 | |
| | | 0·31 | | 2·2 | | 0·27 | | 2·3 | | 0·19 | | 0·3 |
| 18 | 11·42 | | 59·8 | | 45·54 | | 57·0 | | 41·90 | | 46·3 | |
| | | 0·35 | | 2·0 | | 0·34 | | 1·8 | | 0·22 | | 0·0 |
| 28 | 11·77 | | 57·8 | | 45·88 | | 55·2 | | 42·12 | | 46·3 | |
| | | 0·39 | | 2·0 | | 0·39 | | 1·4 | | 0·24 | | 0·3 |
| Oct. 8 | 12·16 | | 55·8 | | 46·27 | | 53·8 | | 42·36 | | 46·6 | |
| | | 0·41 | | 1·7 | | 0·44 | | 0·7 | | 0·27 | | 0·7 |
| 18 | 12·57 | | 54·1 | | 46·71 | | 53·1 | | 42·63 | | 47·3 | |
| | | 0·43 | | 1·6 | | 0·47 | | 0·2 | | 0·30 | | 1·0 |
| 28 | 13·00 | | 52·5 | | 47·18 | | 52·9 | | 42·93 | | 48·3 | |
| | | 0·46 | | 1·4 | | 0·50 | | 0·6 | | 0·31 | | 1·4 |
| Nov. 7 | 13·46 | | 51·1 | | 47·68 | | 53·5 | | 43·24 | | 49·7 | |
| | | 0·46 | | 1·0 | | 0·50 | | 1·1 | | 0·32 | | 1·7 |
| 17 | 13·92 | | 50·1 | | 48·18 | | 54·6 | | 43·56 | | 51·4 | |
| | | 0·46 | | 0·7 | | 0·49 | | 1·8 | | 0·33 | | 2·0 |
| 27 | 14·38 | | 49·4 | | 48·67 | | 56·4 | | 43·89 | | 53·4 | |
| | | 0·44 | | 0·4 | | 0·47 | | 2·3 | | 0·32 | | 2·1 |
| Dec. 7 | 14·82 | | 49·0 | | 49·14 | | 58·7 | | 44·21 | | 55·5 | |
| | | 0·43 | | 0·0 | | 0·44 | | 2·9 | | 0·31 | | 2·3 |
| 17 | 15·25 | | 49·0 | | 49·58 | | 61·6 | | 44·52 | | 57·8 | |
| | | 0·38 | | 0·4 | | 0·37 | | 3·3 | | 0·28 | | 2·3 |
| 27 | 15·63 | | 49·4 | | 49·95 | | 64·9 | | 44·80 | | 60·1 | |
| | | 0·33 | | 0·7 | | 0·31 | | 3·5 | | 0·25 | | 2·3 |
| *37* | *15·96* | | *50·1* | | 50·26 | | 68·4 | | 45·05 | | 62·4 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | θ Ursæ Majoris. | | | | ε Leonis. | | | | α Leonis. (*Regulus*) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *North.* | | R. A. | | Dec. *North.* | |
| | h m 9 22 | | ° ′ 52 23 | | h m 9 36 | | ° ′ 24 30 | | h m 9 59 | | ° ′ 12 44 | |
| | s | | ″ | | s | | ″ | | s | | ″ | |
| Jan. 1 | 5·41 | | 77·5 | | 43·51 | | 42·3 | | 48·78 | | 66·1 | |
| | | s 0·36 | | ″ 0·8 | | s 0·28 | | ″ 0·7 | | s 0·27 | | ″ 1·4 |
| 11 | 5·77 | | 78·3 | | 43·79 | | 41·6 | | 49·05 | | 64·7 | |
| | | 0·29 | | 1·2 | | 0·24 | | 0·4 | | 0·24 | | 1·1 |
| 21 | 6·06 | | 79·5 | | 44·03 | | 41·2 | | 49·29 | | 63·6 | |
| | | 0·22 | | 1·6 | | 0·18 | | 0·1 | | 0·19 | | 0·9 |
| 31 | 6·28 | | 81·1 | | 44·21 | | 41·1 | | 49·48 | | 62·7 | |
| | | 0·15 | | 1·8 | | 0·13 | | 0·1 | | 0·15 | | 0·7 |
| Feb. 10 | 6·43 | | 82·9 | | 44·34 | | 41·2 | | 49·63 | | 62·0 | |
| | | 0·06 | | 1·9 | | 0·08 | | 0·4 | | 0·09 | | 0·4 |
| 20 | 6·49 | | 84·8 | | 44·42 | | 41·6 | | 49·72 | | 61·6 | |
| | | 0·01 | | 2·0 | | 0·02 | | 0·6 | | 0·05 | | 0·1 |
| Mar. 2 | 6·48 | | 86·8 | | 44·44 | | 42·2 | | 49·77 | | 61·5 | |
| | | 0·08 | | 2·0 | | 0·03 | | 0·7 | | 0·01 | | 0·1 |
| 12 | 6·40 | | 88·8 | | 44·41 | | 42·9 | | 49·76 | | 61·6 | |
| | | 0·14 | | 1·8 | | 0·06 | | 0·8 | | 0·04 | | 0·2 |
| 22 | 6·26 | | 90·6 | | 44·35 | | 43·7 | | 49·72 | | 61·8 | |
| | | 0·18 | | 1·6 | | 0·09 | | 0·8 | | 0·07 | | 0·4 |
| Apr. 1 | 6·08 | | 92·2 | | 44·26 | | 44·5 | | 49·65 | | 62·2 | |
| | | 0·22 | | 1·4 | | 0·12 | | 0·9 | | 0·09 | | 0·5 |
| 11 | 5·86 | | 93·6 | | 44·14 | | 45·4 | | 49·56 | | 62·7 | |
| | | 0·25 | | 1·1 | | 0·14 | | 0·7 | | 0·11 | | 0·5 |
| 21 | 5·61 | | 94·7 | | 44·00 | | 46·1 | | 49·45 | | 63·2 | |
| | | 0·25 | | 0·7 | | 0·14 | | 0·7 | | 0·12 | | 0·5 |
| May 1 | 5·36 | | 95·4 | | 43·86 | | 46·8 | | 49·33 | | 63·7 | |
| | | 0·24 | | 0·3 | | 0·13 | | 0·5 | | 0·12 | | 0·6 |
| 11 | 5·12 | | 95·7 | | 43·73 | | 47·3 | | 49·21 | | 64·3 | |
| | | 0·23 | | 0·1 | | 0·13 | | 0·4 | | 0·11 | | 0·5 |
| 21 | 4·89 | | 95·6 | | 43·60 | | 47·7 | | 49·10 | | 64·8 | |
| | | 0·20 | | 0·4 | | 0·11 | | 0·3 | | 0·11 | | 0·5 |
| 31 | 4·69 | | 95·2 | | 43·49 | | 48·0 | | 48·99 | | 65·3 | |
| | | 0·17 | | 0·8 | | 0·09 | | 0·1 | | 0·09 | | 0·4 |
| June 10 | 4·52 | | 94·4 | | 43·40 | | 48·1 | | 48·90 | | 65·7 | |
| | | 0·13 | | 1·2 | | 0·07 | | 0·1 | | 0·07 | | 0·3 |
| 20 | 4·39 | | 93·2 | | 43·33 | | 48·0 | | 48·83 | | 66·0 | |
| | | 0·09 | | 1·4 | | 0·05 | | 0·2 | | 0·05 | | 0·3 |
| 30 | 4·30 | | 91·8 | | 43·28 | | 47·8 | | 48·78 | | 66·3 | |
| | | 0·05 | | 1·8 | | 0·01 | | 0·4 | | 0·02 | | 0·1 |
| July 10 | 4·25 | | 90·0 | | 43·27 | | 47·4 | | 48·76 | | 66·4 | |
| | | 0·00 | | 2·0 | | 0·01 | | 0·5 | | 0·01 | | 0·1 |
| 20 | 4·25 | | 88·0 | | 43·28 | | 46·9 | | 48·75 | | 66·5 | |
| | | 0·05 | | 2·1 | | 0·04 | | 0·7 | | 0·02 | | 0·0 |
| 30 | 4·30 | | 85·9 | | 43·32 | | 46·2 | | 48·77 | | 66·5 | |
| | | 0·10 | | 2·4 | | 0·07 | | 0·8 | | 0·04 | | 0·2 |
| Aug. 9 | 4·40 | | 83·5 | | 43·39 | | 45·4 | | 48·81 | | 66·3 | |
| | | 0·16 | | 2·6 | | 0·11 | | 1·1 | | 0·06 | | 0·3 |
| 19 | * 4·56 | | 80·9 | | * 43·50 | | 44·3 | | 48·87 | | 66·0 | |
| | | 0·20 | | 2·6 | | 0·13 | | 1·1 | | 0·11 | | 0·6 |
| 29 | 4·76 | | 78·3 | | 43·63 | | 43·2 | | 48·98 | | 65·4 | |
| | | 0·24 | | 2·5 | | 0·16 | | 1·3 | | 0·13 | | 0·6 |
| Sept. 8 | 5·00 | | 75·8 | | 43·79 | | 41·9 | | 49·11 | | 64·8 | |
| | | 0·29 | | 2·6 | | 0·20 | | 1·4 | | 0·16 | | 0·9 |
| 18 | 5·29 | | 73·2 | | 43·99 | | 40·5 | | 49·27 | | 63·9 | |
| | | 0·33 | | 2·4 | | 0·22 | | 1·5 | | 0·19 | | 1·0 |
| 28 | 5·62 | | 70·8 | | 44·21 | | 39·0 | | 49·46 | | 62·9 | |
| | | 0·37 | | 2·4 | | 0·26 | | 1·7 | | 0·22 | | 1·3 |
| Oct. 8 | 5·99 | | 68·4 | | 44·47 | | 37·3 | | 49·68 | | 61·6 | |
| | | 0·41 | | 2·3 | | 0·28 | | 1·7 | | 0·26 | | 1·5 |
| 18 | 6·40 | | 66·1 | | 44·75 | | 35·6 | | 49·94 | | 60·1 | |
| | | 0·44 | | 2·0 | | 0·31 | | 1·8 | | 0·28 | | 1·6 |
| 28 | 6·84 | | 64·1 | | 45·06 | | 33·8 | | 50·22 | | 58·5 | |
| | | 0·47 | | 1·7 | | 0·34 | | 1·8 | | 0·31 | | 1·8 |
| Nov. 7 | 7·31 | | 62·4 | | 45·40 | | 32·0 | | 50·53 | | 56·7 | |
| | | 0·49 | | 1·5 | | 0·35 | | 1·8 | | 0·32 | | 1·9 |
| 17 | 7·80 | | 60·9 | | 45·75 | | 30·2 | | 50·85 | | 54·8 | |
| | | 0·49 | | 1·1 | | 0·36 | | 1·7 | | 0·34 | | 1·9 |
| 27 | 8·29 | | 59·8 | | 46·11 | | 28·5 | | 51·19 | | 52·9 | |
| | | 0·48 | | 0·6 | | 0·36 | | 1·6 | | 0·34 | | 1·9 |
| Dec. 7 | 8·77 | | 59·2 | | 46·47 | | 26·9 | | 51·53 | | 51·0 | |
| | | 0·47 | | 0·3 | | 0·35 | | 1·4 | | 0·34 | | 1·9 |
| 17 | 9·24 | | 58·9 | | 46·82 | | 25·5 | | 51·87 | | 49·1 | |
| | | 0·44 | | 0·2 | | 0·33 | | 1·1 | | 0·32 | | 1·7 |
| *27* | *9·68* | | 59·1 | | 47·15 | | 24·4 | | 52·19 | | 47·4 | |
| | | *0·38* | | 0·5 | | 0·29 | | 0·9 | | 0·29 | | 1·5 |
| *37* | *10·06* | | 59·6 | | 47·44 | | 23·5 | | 52·48 | | 45·9 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| y the ath. | η Argus. | | | | α Ursæ Majoris. | | | | δ Leonis. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *South.* | | R. A. | | Dec. *North.* | | R. A. | | Dec. *North.* | |
| | h m 10 38 | | ° ′ 58 50 | | h m 10 53 | | ° ′ 62 36 | | h m 11 5 | | ° ′ 21 23 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| a. 1 | 50·57 | 0·41 | 5·7 | 3·2 | 46·63 | 0·56 | 53·5 | 0·3 | 33·01 | 0·32 | 73·3 | 1·4 |
| 11 | 50·98 | 0·35 | 8·9 | 3·4 | 47·19 | 0·50 | 53·8 | 0·9 | 33·33 | 0·30 | 71·9 | 1·0 |
| 21 | 51·33 | 0·29 | 12·3 | 3·7 | 47·69 | 0·43 | 54·7 | 1·4 | 33·63 | 0·26 | 70·9 | 0·7 |
| 31 | 51·62 | | 16·0 | | 48·12 | | 56·1 | | 33·89 | | 70·2 | |
| | | 0·20 | | 3·7 | | 0·34 | | 1·8 | | 0·21 | | 0·3 |
| eb. 10 | 51·82 | 0·13 | 19·7 | 3·8 | 48·46 | 0·25 | 57·9 | 2·1 | 34·10 | 0·17 | 69·9 | 0·1 |
| 20 | 51·95 | 0·06 | 23·5 | 3·7 | 48·71 | 0·15 | 60·0 | 2·5 | 34·27 | 0·11 | 69·8 | 0·4 |
| ar. 2 | 52·01 | 0·02 | 27·2 | 3·6 | 48·86 | 0·06 | 62·5 | 2·5 | 34·38 | 0·07 | 70·2 | 0·5 |
| 12 | 51·99 | | 30·8 | | 48·92 | | 65·0 | | 34·45 | | 70·7 | |
| | | 0·09 | | 3·3 | | 0·04 | | 2·6 | | 0·02 | | 0·8 |
| 22 | 51·90 | 0·14 | 34·1 | 3·1 | 48·88 | 0·11 | 67·6 | 2·5 | 34·47 | 0·01 | 71·5 | 0·9 |
| pr. 1 | 51·76 | 0·20 | 37·2 | 2·6 | 48·77 | 0·19 | 70·1 | 2·3 | 34·46 | 0·05 | 72·4 | 1·0 |
| 11 | 51·56 | 0·23 | 39·8 | 2·3 | 48·58 | 0·25 | 72·4 | 2·0 | 34·41 | 0·07 | 73·4 | 1·0 |
| 21 | 51·33 | | 42·1 | | 48·33 | | 74·4 | | 34·34 | | 74·4 | |
| | | 0·26 | | 1·9 | | 0·28 | | 1·7 | | 0·09 | | 1·0 |
| ay 1 | 51·07 | 0·29 | 44·0 | 1·4 | 48·05 | 0·32 | 76·1 | 1·3 | 34·25 | 0·11 | 75·4 | 0·9 |
| 11 | 50·78 | 0·30 | 45·4 | 0·9 | 47·73 | 0·34 | 77·4 | 0·8 | 34·14 | 0·11 | 76·3 | 0·8 |
| 21 | 50·48 | 0·31 | 46·3 | 0·4 | 47·39 | 0·33 | 78·2 | 0·4 | 34·03 | 0·12 | 77·1 | 0·7 |
| 31 | 50·17 | | 46·7 | | 47·06 | | 78·6 | | 33·91 | | 77·8 | |
| | | 0·31 | | 0·1 | | 0·33 | | 0·1 | | 0·10 | | 0·5 |
| une 10 | 49·86 | 0·29 | 46·6 | 0·6 | 46·73 | 0·30 | 78·5 | 0·6 | 33·81 | 0·10 | 78·3 | 0·4 |
| 20 | 49·57 | 0·28 | 46·0 | 1·0 | 46·43 | 0·27 | 77·9 | 1·1 | 33·71 | 0·08 | 78·7 | 0·2 |
| 30 | 49·29 | 0·25 | 45·0 | 1·5 | 46·16 | 0·24 | 76·8 | 1·5 | 33·63 | 0·08 | 78·9 | 0·1 |
| ly 10 | 49·04 | | 43·5 | | 45·92 | | 75·3 | | 33·55 | | 78·8 | |
| | | 0·22 | | 1·9 | | 0·19 | | 1·9 | | 0·06 | | 0·2 |
| 20 | 48·82 | 0·17 | 41·6 | 2·2 | 45·73 | 0·15 | 73·4 | 2·3 | 33·49 | 0·04 | 78·6 | 0·4 |
| 30 | 48·65 | 0·13 | 39·4 | 2·5 | 45·58 | 0·09 | 71·1 | 2·6 | 33·45 | 0·02 | 78·2 | 0·7 |
| ug. 9 | 48·52 | 0·07 | 36·9 | 2·6 | 45·49 | 0·03 | 68·5 | 2·9 | 33·43 | 0·00 | 77·5 | 0·8 |
| 19 | 48·45 | | 34·3 | | 45·46 | | 65·6 | | 33·43 | | 76·7 | |
| | | 0·00 | | 2·8 | | 0·02 | | 3·0 | | 0·03 | | 1·0 |
| 29 | 48·45 | 0·06 | 31·5 | 3·0 | 45·48 | 0·10 | 62·6 | 3·6 | 33·46 | 0·07 | 75·7 | 1·4 |
| ept. 8 | *48·51 | 0·14 | 28·5 | 2·7 | *45·58 | 0·16 | 59·0 | 3·3 | *33·53 | 0·10 | 74·3 | 1·5 |
| 18 | 48·65 | 0·22 | 25·8 | 2·2 | 45·74 | 0·23 | 55·7 | 3·4 | 33·63 | 0·13 | 72·8 | 1·7 |
| 28 | 48·87 | | 23·6 | | 45·97 | | 52·3 | | 33·76 | | 71·1 | |
| | | 0·28 | | 2·0 | | 0·30 | | 3·4 | | 0·16 | | 1·8 |
| ct. 8 | 49·15 | 0·35 | 21·6 | 1·6 | 46·27 | 0·36 | 48·9 | 3·2 | 33·92 | 0·21 | 69·3 | 2·0 |
| 18 | 49·50 | 0·42 | 20·0 | 1·0 | 46·63 | 0·43 | 45·7 | 3·1 | 34·13 | 0·24 | 67·3 | 2·2 |
| 28 | 49·92 | 0·46 | 19·0 | 0·5 | 47·06 | 0·49 | 42·6 | 2·8 | 34·37 | 0·28 | 65·1 | 2·2 |
| ov. 7 | 50·38 | | 18·5 | | 47·55 | | 39·8 | | 34·65 | | 62·9 | |
| | | 0·50 | | 0·2 | | 0·54 | | 2·5 | | 0·31 | | 2·3 |
| 17 | 50·88 | 0·52 | 18·7 | 0·7 | 48·09 | 0·57 | 37·3 | 2·0 | 34·96 | 0·33 | 60·6 | 2·2 |
| 27 | 51·40 | 0·53 | 19·4 | 1·4 | 48·66 | 0·60 | 35·3 | 1·6 | 35·29 | 0·35 | 58·4 | 2·2 |
| ec. 7 | 51·93 | 0·52 | 20·8 | 2·0 | 49·26 | 0·62 | 33·7 | 1·1 | 35·64 | 0·36 | 56·2 | 2·1 |
| 17 | 52·45 | | 22·8 | | 49·88 | | 32·6 | | 36·00 | | 54·1 | |
| | | 0·49 | | 2·5 | | 0·60 | | 0·6 | | 0·36 | | 1·8 |
| 27 | 52·94 | 0·45 | 25·3 | 3·0 | 50·48 | 0·58 | 32·0 | 0·1 | 36·36 | 0·34 | 52·3 | 1·5 |
| *37* | *53·39* | | *28·3* | | *51·06* | | 32·1 | | 36·70 | | 50·8 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STA
### FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | δ Hydræ et Crateris. | | | | β Leonis. | | | | γ Ursæ M | |
|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *South.* | | R. A. | | Dec. *North.* | | R. A. | |
| | h m 11 11 | | ° ′ 13 54 | | h m 11 40 | | ° ′ 15 27 | | h m 11 45 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s |
| Jan. 1 | 18·27 | 0·31 | 24·2 | 2·4 | 51·22 | 0·33 | 74·8 | 1·8 | 21·17 | 0·49 |
| 11 | 18·58 | 0·28 | 26·6 | 2·4 | 51·55 | 0·30 | 73·0 | 1·4 | 21·66 | 0·46 |
| 21 | 18·86 | 0·24 | 29·0 | 2·4 | 51·85 | 0·28 | 71·6 | 1·1 | 22·12 | 0·41 |
| 31 | 19·10 | | 31·4 | | 52·13 | | 70·5 | | 22·53 | |
| | | 0·20 | | 2·2 | | 0·23 | | 0·8 | | 0·35 |
| Feb. 10 | 19·30 | 0·16 | 33·6 | 2·1 | 52·36 | 0·20 | 69·7 | 0·5 | 22·88 | 0·28 |
| 20 | 19·46 | 0·11 | 35·7 | 1·8 | 52·56 | 0·14 | 69·2 | 0·1 | 23·16 | 0·22 |
| Mar. 2 | 19·57 | 0·06 | 37·5 | 1·6 | 52·70 | 0·11 | 69·1 | 0·2 | 23·38 | 0·14 |
| 12 | 19·63 | | 39·1 | | 52·81 | | 69·3 | | 23·52 | |
| | | 0·03 | | 1·3 | | 0·05 | | 0·4 | | 0·07 |
| 22 | 19·66 | 0·01 | 40·4 | 1·1 | 52·86 | 0·03 | 69·7 | 0·6 | 23·59 | 0·01 |
| Apr. 1 | 19·65 | 0·03 | 41·5 | 0·9 | 52·89 | 0·02 | 70·3 | 0·8 | 23·58 | 0·06 |
| 11 | 19·62 | 0·06 | 42·4 | 0·5 | 52·87 | 0·04 | 71·1 | 0·9 | 23·52 | 0·12 |
| 21 | 19·56 | | 42·9 | | 52·83 | | 72·0 | | 23·40 | |
| | | 0·08 | | 0·4 | | 0·06 | | 0·9 | | 0·16 |
| May 1 | 19·48 | 0·09 | 43·3 | 0·2 | 52·77 | 0·08 | 72·9 | 0·9 | 23·24 | 0·20 |
| 11 | 19·39 | 0·10 | 43·5 | 0·1 | 52·69 | 0·09 | 73·8 | 0·8 | 23·04 | 0·22 |
| 21 | 19·29 | 0·10 | 43·4 | 0·3 | 52·60 | 0·09 | 74·6 | 0·8 | 22·82 | 0·23 |
| 31 | 19·19 | | 43·1 | | 52·51 | | 75·4 | | 22·59 | |
| | | 0·10 | | 0·4 | | 0·10 | | 0·7 | | 0·24 |
| June 10 | 19·09 | 0·10 | 42·7 | 0·6 | 52·41 | 0·10 | 76·1 | 0·5 | 22·35 | 0·24 |
| 20 | 18·99 | 0·09 | 42·1 | 0·8 | 52·31 | 0·09 | 76·6 | 0·4 | 22·11 | 0·23 |
| 30 | 18·90 | 0·08 | 41·3 | 0·8 | 52·22 | 0·09 | 77·0 | 0·3 | 21·88 | 0·22 |
| July 10 | 18·82 | | 40·5 | | 52·13 | | 77·3 | | 21·66 | |
| | | 0·06 | | 1·0 | | 0·08 | | 0·1 | | 0·19 |
| 20 | 18·76 | 0·05 | 39·5 | 1·0 | 52·05 | 0·06 | 77·4 | 0·1 | 21·47 | 0·17 |
| 30 | 18·71 | 0·04 | 38·5 | 1·1 | 51·99 | 0·05 | 77·3 | 0·3 | 21·30 | 0·13 |
| Aug. 9 | 18·67 | 0·01 | 37·4 | 1·0 | 51·94 | 0·03 | 77·0 | 0·5 | 21·17 | 0·10 |
| 19 | 18·66 | | 36·4 | | 51·91 | | 76·5 | | 21·07 | |
| | | 0·02 | | 0·9 | | 0·00 | | 0·7 | | 0·06 |
| 29 | 18·68 | 0·04 | 35·5 | 0·9 | 51·91 | 0·02 | 75·8 | 0·9 | 21·01 | 0·01 |
| Sept. 8 | 18·72 | 0·09 | 34·6 | 0·7 | 51·93 | 0·06 | 74·9 | 1·2 | 21·00 | 0·04 |
| 18 | *18·81 | 0·12 | 33·9 | 0·3 | *51·99 | 0·08 | 73·7 | 1·4 | *21·04 | 0·10 |
| 28 | 18·93 | | 33·6 | | 52·07 | | 72·3 | | 21·14 | |
| | | 0·16 | | 0·1 | | 0·13 | | 1·6 | | 0·15 |
| Oct. 8 | 19·09 | 0·19 | 33·5 | 0·3 | 52·20 | 0·16 | 70·7 | 1·8 | 21·29 | 0·21 |
| 18 | 19·28 | 0·24 | 33·8 | 0·6 | 52·36 | 0·22 | 68·9 | 2·0 | 21·50 | 0·28 |
| 28 | 19·52 | 0·27 | 34·4 | 0·9 | 52·58 | 0·24 | 66·9 | 2·2 | 21·78 | 0·34 |
| Nov. 7 | 19·79 | | 35·3 | | 52·82 | | 64·7 | | 22·12 | |
| | | 0·30 | | 1·3 | | 0·28 | | 2·2 | | 0·38 |
| 17 | 20·09 | 0·32 | 36·6 | 1·7 | 53·10 | 0·31 | 62·5 | 2·4 | 22·50 | 0·44 |
| 27 | 20·41 | 0·34 | 38·3 | 1·9 | 53·41 | 0·33 | 60·1 | 2·2 | 22·94 | 0·46 |
| Dec. 7 | 20·75 | 0·35 | 40·2 | 2·2 | 53·74 | 0·35 | 57·9 | 2·3 | 23·40 | 0·50 |
| 17 | 21·10 | | 42·4 | | 54·09 | | 55·6 | | 23·90 | |
| | | 0·34 | | 2·4 | | 0·34 | | 2·1 | | 0·50 |
| 27 | 21·44 | 0·32 | 44·8 | 2·4 | 54·43 | 0·34 | 53·5 | 1·8 | 24·40 | 0·50 |
| 37 | 21·76 | | 47·2 | | 54·77 | | 51·7 | | 24·90 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| y e th. | β Chamæleontis. | | | | α¹ Crucis. | | | | β Corvi. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *South.* | | R. A. | | Dec. *South.* | | R. A. | | Dec. *South.* | |
| | h m 12 8 | | ° ′ 78 24 | | h m 12 17 | | ° ′ 62 12 | | h m 12 25 | | ° ′ 22 30 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| 1 | 61·74 | 1·16 | 47·2 | 1·9 | 41·30 | 0·58 | 3·7 | 2·1 | 56·49 | 0·35 | 11·0 | 2·3 |
| 11 | 62·90 | 1·07 | 49·1 | 2·4 | 41·88 | 0·53 | 5·8 | 2·5 | 56·84 | 0·33 | 13·3 | 2·4 |
| 21 | 63·97 | 0·96 | 51·5 | 2·9 | 42·41 | 0·49 | 8·3 | 2·9 | 57·17 | 0·31 | 15·7 | 2·4 |
| 31 | 64·93 | | 54·4 | | 42·90 | | 11·2 | | 57·48 | | 18·1 | |
| | | 0·83 | | 3·3 | | 0·42 | | 3·2 | | 0·27 | | 2·5 |
| 10 | 65·76 | 0·67 | 57·7 | 3·6 | 43·32 | 0·36 | 14·4 | 3·5 | 57·75 | 0·23 | 20·6 | 2·3 |
| 20 | 66·43 | 0·50 | 61·3 | 3·7 | 43·68 | 0·28 | 17·9 | 3·5 | 57·98 | 0·19 | 22·9 | 2·2 |
| 2 | 66·93 | 0·34 | 65·0 | 3·9 | 43·96 | 0·21 | 21·4 | 3·6 | 58·17 | 0·15 | 25·1 | 2·0 |
| 12 | 67·27 | | 68·9 | | 44·17 | | 25·0 | | 58·32 | | 27·1 | |
| | | 0·18 | | 3·9 | | 0·13 | | 3·6 | | 0·11 | | 1·9 |
| 22 | 67·45 | 0·01 | 72·8 | 3·8 | 44·30 | 0·07 | 28·6 | 3·4 | 58·43 | 0·07 | 29·0 | 1·6 |
| 1 | 67·46 | 0·14 | 76·6 | 3·7 | 44·37 | 0·00 | 32·0 | 3·3 | 58·50 | 0·04 | 30·6 | 1·4 |
| 11 | 67·32 | 0·29 | 80·3 | 3·4 | 44·37 | 0·07 | 35·3 | 3·0 | 58·54 | 0·01 | 32·0 | 1·1 |
| 21 | 67·03 | | 83·7 | | 44·30 | | 38·3 | | 58·55 | | 33·1 | |
| | | 0·43 | | 3·2 | | 0·12 | | 2·8 | | 0·02 | | 1·0 |
| 1 | 66·60 | 0·54 | 86·9 | 2·9 | 44·18 | 0·17 | 41·1 | 2·4 | 58·53 | 0·04 | 34·1 | 0·7 |
| 11 | 66·06 | 0·66 | 89·8 | 2·4 | 44·01 | 0·21 | 43·5 | 2·0 | 58·49 | 0·06 | 34·8 | 0·4 |
| 21 | 65·40 | 0·75 | 92·2 | 2·0 | 43·80 | 0·25 | 45·5 | 1·6 | 58·43 | 0·07 | 35·2 | 0·3 |
| 31 | 64·65 | | 94·2 | | 43·55 | | 47·1 | | 58·36 | | 35·5 | |
| | | 0·82 | | 1·5 | | 0·28 | | 1·1 | | 0·09 | | 0·0 |
| 10 | 63·83 | 0·88 | 95·7 | 1·9 | 43·27 | 0·31 | 48·2 | 0·7 | 58·27 | 0·09 | 35·5 | 0·2 |
| 20 | 62·95 | 0·90 | 96·7 | 0·4 | 42·96 | 0·31 | 48·9 | 0·2 | 58·18 | 0·11 | 35·3 | 0·5 |
| 30 | 62·05 | 0·90 | 97·1 | 0·2 | 42·65 | 0·32 | 49·1 | 0·3 | 58·07 | 0·10 | 34·8 | 0·6 |
| 10 | 61·15 | | 96·9 | | 42·33 | | 48·8 | | 57·97 | | 34·2 | |
| | | 0·89 | | 0·6 | | 0·32 | | 0·8 | | 0·11 | | 0·7 |
| 20 | 60·26 | 0·83 | 96·3 | 1·2 | 42·01 | 0·30 | 48·0 | 1·2 | 57·86 | 0·10 | 33·5 | 1·0 |
| 30 | 59·43 | 0·75 | 95·1 | 1·7 | 41·71 | 0·28 | 46·8 | 1·7 | 57·76 | 0·09 | 32·5 | 1·0 |
| 9 | 58·68 | 0·64 | 93·4 | 2·1 | 41·43 | 0·24 | 45·1 | 2·0 | 57·67 | 0·08 | 31·5 | 1·1 |
| 9 | 58·04 | | 91·3 | | 41·19 | | 43·1 | | 57·59 | | 30·4 | |
| | | 0·51 | | 2·5 | | 0·18 | | 2·3 | | 0·06 | | 1·2 |
| | 57·53 | 0·35 | 88·8 | 2·7 | 41·01 | 0·12 | 40·8 | 2·5 | 57·53 | 0·03 | 29·2 | 1·1 |
| | 57·18 | 0·16 | 86·1 | 2·9 | 40·89 | 0·05 | 38·3 | 2·6 | 57·50 | 0·01 | 28·1 | 1·0 |
| | 57·02 | 0·03 | 83·2 | 3·3 | 40·84 | 0·04 | 35·7 | 2·9 | 57·51 | 0·04 | 27·1 | 1·0 |
| | 57·05 | | 79·9 | | *40·88 | | 32·8 | | *57·55 | | 26·1 | |
| | | 0·26 | | 2·8 | | 0·13 | | 2·5 | | 0·09 | | 0·7 |
| | 57·31 | 0·46 | 77·1 | 2·7 | 41·01 | 0·22 | 30·3 | 2·3 | 57·64 | 0·13 | 25·4 | 0·4 |
| | 57·77 | 0·64 | 74·4 | 2·4 | 41·23 | 0·31 | 28·0 | 2·0 | 57·77 | 0·18 | 25·0 | 0·1 |
| | 58·41 | 0·83 | 72·0 | 2·0 | 41·54 | 0·39 | 26·0 | 1·5 | 57·95 | 0·22 | 24·9 | 0·3 |
| | 59·24 | | 70·0 | | 41·93 | | 24·5 | | 58·17 | | 25·2 | |
| | | 0·99 | | 1·5 | | 0·46 | | 1·1 | | 0·27 | | 0·7 |
| | 60·23 | 1·10 | 68·5 | 0·9 | 42·39 | 0·53 | 23·4 | 0·5 | 58·44 | 0·31 | 25·9 | 1·0 |
| | 61·33 | 1·19 | 67·6 | 0·3 | 42·92 | 0·57 | 22·9 | 0·1 | 58·75 | 0·33 | 26·9 | 1·3 |
| | 62·52 | 1·22 | 67·3 | 0·4 | 43·49 | 0·59 | 23·0 | 0·7 | 59·08 | 0·35 | 28·2 | 1·8 |
| | 63·74 | | 67·7 | | 44·08 | | 23·7 | | 59·43 | | 30·0 | |
| | | 1·24 | | 1·0 | | 0·61 | | 1·3 | | 0·36 | | 1·9 |
| | 64·98 | 1·20 | 68·7 | 1·6 | 44·69 | 0·59 | 25·0 | 1·8 | 59·79 | 0·36 | 31·9 | 2·2 |
| | 66·18 | | 70·3 | | 45·28 | | 26·8 | | 60·15 | | 34·1 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STAR
### FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | 12 Canum Venaticorum. | | | | α Virginis. (*Spica*) | | | | η Ursæ Ma | |
|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *South.* | | R. A. | D |
| | h m 12 48 | | ° ′ 39 10 | | h m 13 16 | | ° ′ 10 19 | | h m 13 41 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s |
| Jan. 1 | 29·93 | 0·39 | 65·6 | 1·7 | 42·96 | 0·34 | 6·6 | 2·1 | 11·28 | 0·44 |
| 11 | 30·32 | 0·39 | 63·9 | 1·1 | 43·30 | 0·33 | 8·7 | 2·1 | 11·72 | 0·44 |
| 21 | 30·71 | 0·37 | 62·8 | 0·6 | 43·63 | 0·32 | 10·8 | 2·0 | 12·16 | 0·44 |
| 31 | 31·08 | | 62·2 | | 43·95 | | 12·8 | | 12·60 | |
| | | 0·33 | | 0·1 | | 0·30 | | 1·9 | | 0·41 |
| Feb. 10 | 31·41 | 0·29 | 62·1 | 0·5 | 44·25 | 0·26 | 14·7 | 1·7 | 13·01 | 0·38 |
| 20 | 31·70 | 0·24 | 62·6 | 0·9 | 44·51 | 0·23 | 16·4 | 1·6 | 13·39 | 0·33 |
| Mar. 2 | 31·94 | 0·19 | 63·5 | 1·3 | 44·74 | 0·19 | 18·0 | 1·3 | 13·72 | 0·28 |
| 12 | 32·13 | | 64·8 | | 44·93 | | 19·3 | | 14·00 | |
| | | 0·15 | | 1·7 | | 0·16 | | 1·0 | | 0·22 |
| 22 | 32·28 | 0·09 | 66·5 | 1·9 | 45·09 | 0·13 | 20·3 | 0·9 | 14·22 | 0·17 |
| Apr. 1 | 32·37 | 0·04 | 68·4 | 2·0 | 45·22 | 0·09 | 21·2 | 0·6 | 14·39 | 0·11 |
| 11 | 32·41 | 0·00 | 70·4 | 2·1 | 45·31 | 0·06 | 21·8 | 0·5 | 14·50 | 0·05 |
| 21 | 32·41 | | 72·5 | | 45·37 | | 22·3 | | 14·55 | |
| | | 0·03 | | 2·1 | | 0·03 | | 0·2 | | 0·01 |
| May 1 | 32·38 | 0·07 | 74·6 | 2·0 | 45·40 | 0·01 | 22·5 | 0·1 | 14·56 | 0·05 |
| 11 | 32·31 | 0·10 | 76·6 | 1·8 | 45·41 | 0·02 | 22·6 | 0·0 | 14·51 | 0·09 |
| 21 | 32·21 | 0·12 | 78·4 | 1·5 | 45·39 | 0·03 | 22·6 | 0·2 | 14·42 | 0·13 |
| 31 | 32·09 | | 79·9 | | 45·36 | | 22·4 | | 14·29 | |
| | | 0·13 | | 1·3 | | 0·05 | | 0·3 | | 0·16 |
| June 10 | 31·96 | 0·15 | 81·2 | 0·9 | 45·31 | 0·07 | 22·1 | 0·3 | 14·13 | 0·19 |
| 20 | 31·81 | 0·15 | 82·1 | 0·6 | 45·24 | 0·08 | 21·8 | 0·5 | 13·94 | 0·20 |
| 30 | 31·66 | 0·16 | 82·7 | 0·2 | 45·16 | 0·09 | 21·3 | 0·5 | 13·74 | 0·23 |
| July 10 | 31·50 | | 82·9 | | 45·07 | | 20·8 | | 13·51 | |
| | | 0·15 | | 0·2 | | 0·10 | | 0·5 | | 0·23 |
| 20 | 31·35 | 0·15 | 82·7 | 0·6 | 44·97 | 0·10 | 20·3 | 0·6 | 13·28 | 0·24 |
| 30 | 31·20 | 0·14 | 82·1 | 0·9 | 44·87 | 0·11 | 19·7 | 0·6 | 13·04 | 0·23 |
| Aug. 9 | 31·06 | 0·13 | 81·2 | 1·3 | 44·76 | 0·10 | 19·1 | 0·6 | 12·81 | 0·22 |
| 19 | 30·93 | | 79·9 | | 44·66 | | 18·5 | | 12·59 | |
| | | 0·10 | | 1·7 | | 0·08 | | 0·5 | | 0·21 |
| 29 | 30·83 | 0·07 | 78·2 | 2·0 | 44·58 | 0·06 | 18·0 | 0·5 | 12·38 | 0·18 |
| Sept. 8 | 30·76 | 0·04 | 76·2 | 2·3 | 44·52 | 0·04 | 17·5 | 0·3 | 12·20 | 0·15 |
| 18 | 30·72 | 0·00 | 73·9 | 2·5 | 44·48 | 0·01 | 17·2 | 0·2 | 12·05 | 0·10 |
| 28 | 30·72 | | 71·4 | | 44·47 | | 17·0 | | 11·95 | |
| | * | 0·04 | | 3·1 | | 0·03 | | 0·0 | | 0·06 |
| Oct. 8 | 30·76 | 0·10 | 68·3 | 3·0 | 44·50 | 0·08 | 17·0 | 0·3 | *11·89 | 0·01 |
| 18 | 30·86 | 0·14 | 65·3 | 3·1 | *44·58 | 0·12 | 17·3 | 0·5 | 11·90 | 0·06 |
| 28 | 31·00 | 0·20 | 62·2 | 3·2 | 44·70 | 0·17 | 17·8 | 0·8 | 11·96 | 0·13 |
| Nov. 7 | 31·20 | | 59·0 | | 44·87 | | 18·6 | | 12·09 | |
| | | 0·25 | | 3·2 | | 0·21 | | 1·1 | | 0·20 |
| 17 | 31·45 | 0·30 | 55·8 | 3·0 | 45·08 | 0·25 | 19·7 | 1·3 | 12·29 | 0·26 |
| 27 | 31·75 | 0·33 | 52·8 | 2·9 | 45·33 | 0·29 | 21·0 | 1·6 | 12·55 | 0·31 |
| Dec. 7 | 32·08 | 0·37 | 49·9 | 2·7 | 45·62 | 0·32 | 22·6 | 1·8 | 12·86 | 0·37 |
| 17 | 32·45 | | 47·2 | | 45·94 | | 24·4 | | 13·23 | |
| | | 0·39 | | 2·2 | | 0·34 | | 2·0 | | 0·40 |
| 27 | 32·84 | 0·40 | 45·0 | 1·9 | 46·28 | 0·34 | 26·4 | 2·0 | 13·63 | 0·43 |
| 37 | 33·24 | | 43·1 | | 46·62 | | 28·4 | | 14·06 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | η Bootis. | | | | β Centauri. | | | | α Bootis. (*Arcturus*) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *South.* | | R. A. | | Dec. *North.* | |
| | h m 13 47 | | ° ′ 19 11 | | h m 13 52 | | ° ′ 59 35 | | h m 14 8 | | ° ′ 20 0 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| Jan. 1 | 1·11 | | 79·1 | | 30·16 | | 18·7 | | 18·94 | | 73·8 | |
| | | 0·34 | | 2·2 | | 0·58 | | 0·9 | | 0·31 | | 2·3 |
| 11 | 1·45 | | 76·9 | | 30·74 | | 19·6 | | 19·25 | | 71·5 | |
| | | 0·35 | | 1·9 | | 0·57 | | 1·4 | | 0·35 | | 2·1 |
| 21 | 1·80 | | 75·0 | | 31·31 | | 21·0 | | 19·60 | | 69·4 | |
| | | 0·33 | | 1·5 | | 0·56 | | 1·8 | | 0·34 | | 1·6 |
| 31 | 2·13 | | 73·5 | | 31·87 | | 22·8 | | 19·94 | | 67·8 | |
| | | 0·31 | | 1·1 | | 0·53 | | 2·2 | | 0·32 | | 1·2 |
| Feb. 10 | 2·44 | | 72·4 | | 32·40 | | 25·0 | | 20·26 | | 66·6 | |
| | | 0·29 | | 0·7 | | 0·49 | | 2·5 | | 0·30 | | 0·8 |
| 20 | 2·73 | | 71·7 | | 32·89 | | 27·5 | | 20·56 | | 65·8 | |
| | | 0·26 | | 0·2 | | 0·44 | | 2·8 | | 0·26 | | 0·4 |
| Mar. 2 | 2·99 | | 71·5 | | 33·33 | | 30·3 | | 20·82 | | 65·4 | |
| | | 0·22 | | 0·1 | | 0·38 | | 2·9 | | 0·24 | | 0·1 |
| 12 | 3·21 | | 71·6 | | 33·71 | | 33·2 | | 21·06 | | 65·5 | |
| | | 0·19 | | 0·6 | | 0·33 | | 3·0 | | 0·20 | | 0·5 |
| 22 | 3·40 | | 72·2 | | 34·04 | | 36·2 | | 21·26 | | 66·0 | |
| | | 0·15 | | 0·8 | | 0·27 | | 3·0 | | 0·18 | | 0·8 |
| Apr. 1 | 3·55 | | 73·0 | | 34·31 | | 39·2 | | 21·44 | | 66·8 | |
| | | 0·11 | | 1·2 | | 0·21 | | 3·1 | | 0·12 | | 1·1 |
| 11 | 3·66 | | 74·2 | | 34·52 | | 42·3 | | 21·56 | | 67·9 | |
| | | 0·08 | | 1·3 | | 0·15 | | 3·0 | | 0·10 | | 1·4 |
| 21 | 3·74 | | 75·5 | | 34·67 | | 45·3 | | 21·66 | | 69·3 | |
| | | 0·04 | | 1·4 | | 0·09 | | 2·9 | | 0·07 | | 1·4 |
| May 1 | 3·78 | | 76·9 | | 34·76 | | 48·2 | | 21·73 | | 70·7 | |
| | | 0·02 | | 1·5 | | 0·04 | | 2·7 | | 0·03 | | 1·6 |
| 11 | 3·80 | | 78·4 | | 34·80 | | 50·9 | | 21·76 | | 72·3 | |
| | | 0·00 | | 1·5 | | 0·03 | | 2·4 | | 0·01 | | 1·5 |
| 21 | 3·80 | | 79·9 | | 34·77 | | 53·3 | | 21·77 | | 73·8 | |
| | | 0·04 | | 1·4 | | 0·07 | | 2·2 | | 0·02 | | 1·5 |
| 31 | 3·76 | | 81·3 | | 34·70 | | 55·5 | | 21·75 | | 75·3 | |
| | | 0·05 | | 1·3 | | 0·13 | | 1·9 | | 0·05 | | 1·4 |
| June 10 | 3·71 | | 82·6 | | 34·57 | | 57·4 | | 21·70 | | 76·7 | |
| | | 0·08 | | 1·2 | | 0·17 | | 1·5 | | 0·06 | | 1·3 |
| 20 | 3·63 | | 83·8 | | 34·40 | | 58·9 | | 21·64 | | 78·0 | |
| | | 0·09 | | 1·0 | | 0·21 | | 1·1 | | 0·09 | | 1·0 |
| 30 | 3·54 | | 84·8 | | 34·19 | | 60·0 | | 21·55 | | 79·0 | |
| | | 0·10 | | 0·7 | | 0·25 | | 0·7 | | 0·11 | | 0·9 |
| July 10 | 3·44 | | 85·5 | | 33·94 | | 60·7 | | 21·44 | | 79·9 | |
| | | 0·12 | | 0·5 | | 0·27 | | 0·2 | | 0·11 | | 0·6 |
| 20 | 3·32 | | 86·0 | | 33·67 | | 60·9 | | 21·33 | | 80·5 | |
| | | 0·12 | | 0·3 | | 0·29 | | 0·2 | | 0·13 | | 0·3 |
| 30 | 3·20 | | 86·3 | | 33·38 | | 60·7 | | 21·20 | | 80·8 | |
| | | 0·13 | | 0·0 | | 0·30 | | 0·6 | | 0·14 | | 0·0 |
| Aug. 9 | 3·07 | | 86·3 | | 33·08 | | 60·1 | | 21·06 | | 80·8 | |
| | | 0·12 | | 0·3 | | 0·29 | | 1·1 | | 0·14 | | 0·2 |
| 19 | 2·95 | | 86·0 | | 32·79 | | 59·0 | | 20·92 | | 80·6 | |
| | | 0·11 | | 0·5 | | 0·27 | | 1·5 | | 0·13 | | 0·5 |
| 29 | 2·84 | | 85·5 | | 32·52 | | 57·5 | | 20·79 | | 80·1 | |
| | | 0·10 | | 0·8 | | 0·23 | | 1·8 | | 0·11 | | 0·9 |
| Sept. 8 | 2·74 | | 84·7 | | 32·29 | | 55·7 | | 20·68 | | 79·2 | |
| | | 0·08 | | 1·1 | | 0·19 | | 2·0 | | 0·11 | | 1·1 |
| 18 | 2·66 | | 83·6 | | 32·10 | | 53·7 | | 20·57 | | 78·1 | |
| | | 0·05 | | 1·4 | | 0·12 | | 2·3 | | 0·07 | | 1·4 |
| 28 | 2·61 | | 82·2 | | 31·98 | | 51·4 | | 20·50 | | 76·7 | |
| | | 0·01 | | 1·7 | | 0·05 | | 2·4 | | 0·04 | | 1·7 |
| Oct. 8 | 2·60 | | 80·5 | | 31·93 | | 49·0 | | 20·46 | | 75·0 | |
| | | 0·03 | | 1·9 | | 0·03 | | 2·3 | | 0·00 | | 2·0 |
| 18 | 2·63 | | 78·6 | | 31·96 | | 46·7 | | 20·46 | | 73·0 | |
| | | 0·08 | | 2·4 | | 0·13 | | 2·5 | | 0·06 | | 2·4 |
| 28 | *2·71 | | 76·2 | | *32·09 | | 44·2 | | *20·52 | | 70·6 | |
| | | 0·12 | | 2·4 | | 0·22 | | 2·0 | | 0·10 | | 2·5 |
| Nov. 7 | 2·83 | | 73·8 | | 32·31 | | 42·2 | | 20·62 | | 68·1 | |
| | | 0·17 | | 2·6 | | 0·30 | | 1·8 | | 0·15 | | 2·6 |
| 17 | 3·00 | | 71·2 | | 32·61 | | 40·4 | | 20·77 | | 65·5 | |
| | | 0·22 | | 2·6 | | 0·39 | | 1·3 | | 0·19 | | 2·8 |
| 27 | 3·22 | | 68·6 | | 33·00 | | 39·1 | | 20·96 | | 62·7 | |
| | | 0·26 | | 2·7 | | 0·45 | | 0·9 | | 0·24 | | 2·7 |
| Dec. 7 | 3·48 | | 65·9 | | 33·45 | | 38·2 | | 21·20 | | 60·0 | |
| | | 0·30 | | 2·6 | | 0·51 | | 0·5 | | 0·28 | | 2·8 |
| 17 | 3·78 | | 63·3 | | 33·96 | | 37·7 | | 21·48 | | 57·2 | |
| | | 0·32 | | 2·6 | | 0·56 | | 0·1 | | 0·31 | | 2·6 |
| 27 | 4·10 | | 60·7 | | 34·52 | | 37·8 | | 21·79 | | 54·6 | |
| | | 0·34 | | 2·3 | | 0·57 | | 0·7 | | 0·33 | | 2·5 |
| 37 | 4·44 | | 58·4 | | 35·09 | | 38·5 | | 22·12 | | 52·1 | |

APPARENT PLACES OF THE PRINCIPAL FIXED STA
FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | $\alpha^2$ Centauri. | | | | $\epsilon$ Bootis. | | | | $\alpha^2$ Lib | |
|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *South.* | | R. A. | | Dec. *North.* | | R. A. | |
| | h m 14 28 | | ° ′ 60 9 | | h m 14 37 | | ° ′ 27 44 | | h m 14 41 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s |
| Jan. 1 | 41·89 | | 41·7 | | 56·91 | | 68·9 | | 58·37 | |
| | | 0·57 | | 0·4 | | 0·34 | | 2·6 | | 0·34 |
| 11 | 42·46 | | 42·1 | | 57·25 | | 66·3 | | 58·71 | |
| | | 0·57 | | 0·8 | | 0·35 | | 2·1 | | 0·34 |
| 21 | 43·03 | | 42·9 | | 57·60 | | 64·2 | | 59·05 | |
| | | 0·58 | | 1·3 | | 0·34 | | 1·6 | | 0·34 |
| 31 | 43·61 | | 44·2 | | 57·94 | | 62·6 | | 59·39 | |
| | | 0·55 | | 1·7 | | 0·34 | | 1·2 | | 0·32 |
| Feb. 10 | 44·16 | | 45·9 | | 58·28 | | 61·4 | | 59·72 | |
| | | 0·53 | | 2·0 | | 0·33 | | 0·7 | | 0·32 |
| 20 | 44·69 | | 47·9 | | 58·61 | | 60·7 | | 60·04 | |
| | | 0·49 | | 2·3 | | 0·29 | | 0·1 | | 0·29 |
| Mar. 2 | 45·18 | | 50·2 | | 58·90 | | 60·6 | | 60·33 | |
| | | 0·43 | | 2·5 | | 0·27 | | 0·3 | | 0·27 |
| 12 | 45·61 | | 52·7 | | 59·17 | | 60·9 | | 60·60 | |
| | | 0·39 | | 2·7 | | 0·24 | | 0·8 | | 0·24 |
| 22 | 46·00 | | 55·4 | | 59·41 | | 61·7 | | 60·84 | |
| | | 0·33 | | 2·8 | | 0·20 | | 1·2 | | 0·21 |
| Apr. 1 | 46·33 | | 58·2 | | 59·61 | | 62·9 | | 61·05 | |
| | | 0·28 | | 2·9 | | 0·17 | | 1·5 | | 0·18 |
| 11 | 46·61 | | 61·1 | | 59·78 | | 64·4 | | 61·23 | |
| | | 0·21 | | 2·9 | | 0·12 | | 1·8 | | 0·15 |
| 21 | 46·82 | | 64·0 | | 59·90 | | 66·2 | | 61·38 | |
| | | 0·16 | | 2·8 | | 0·10 | | 2·0 | | 0·12 |
| May 1 | 46·98 | | 66·8 | | 60·00 | | 68·2 | | 61·50 | |
| | | 0·09 | | 2·7 | | 0·06 | | 2·0 | | 0·09 |
| 11 | 47·07 | | 69·5 | | 60·06 | | 70·2 | | 61·59 | |
| | | 0·04 | | 2·5 | | 0·02 | | 2·1 | | 0·07 |
| 21 | 47·11 | | 72·0 | | 60·08 | | 72·3 | | 61·66 | |
| | | 0·02 | | 2·3 | | 0·00 | | 1·9 | | 0·04 |
| 31 | 47·09 | | 74·3 | | 60·08 | | 74·2 | | 61·70 | |
| | | 0·08 | | 2·1 | | 0·04 | | 1·9 | | 0·00 |
| June 10 | 47·01 | | 76·4 | | 60·04 | | 76·1 | | 61·70 | |
| | | 0·14 | | 1·7 | | 0·06 | | 1·6 | | 0·01 |
| 20 | 46·87 | | 78·1 | | 59·98 | | 77·7 | | 61·69 | |
| | | 0·19 | | 1·4 | | 0·09 | | 1·5 | | 0·05 |
| 30 | 46·68 | | 79·5 | | 59·89 | | 79·2 | | 61·64 | |
| | | 0·23 | | 1·1 | | 0·11 | | 1·1 | | 0·07 |
| July 10 | 46·45 | | 80·6 | | 59·78 | | 80·3 | | 61·57 | |
| | | 0·27 | | 0·6 | | 0·13 | | 0·9 | | 0·09 |
| 20 | 46·18 | | 81·2 | | 59·65 | | 81·2 | | 61·48 | |
| | | 0·30 | | 0·2 | | 0·15 | | 0·5 | | 0·11 |
| 30 | 45·88 | | 81·4 | | 59·50 | | 81·7 | | 61·37 | |
| | | 0·32 | | 0·3 | | 0·15 | | 0·2 | | 0·12 |
| Aug. 9 | 45·56 | | 81·1 | | 59·35 | | 81·9 | | 61·25 | |
| | | 0·33 | | 0·7 | | 0·17 | | 0·2 | | 0·13 |
| 19 | 45·23 | | 80·4 | | 59·18 | | 81·7 | | 61·12 | |
| | | 0·31 | | 1·1 | | 0·15 | | 0·5 | | 0·13 |
| 29 | 44·92 | | 79·3 | | 59·03 | | 81·2 | | 60·99 | |
| | | 0·29 | | 1·5 | | 0·16 | | 0·9 | | 0·12 |
| Sept. 8 | 44·63 | | 77·8 | | 58·87 | | 80·3 | | 60·87 | |
| | | 0·25 | | 1·8 | | 0·13 | | 1·2 | | 0·11 |
| 18 | 44·38 | | 76·0 | | 58·74 | | 79·1 | | 60·76 | |
| | | 0·19 | | 2·1 | | 0·11 | | 1·6 | | 0·08 |
| 28 | 44·19 | | 73·9 | | 58·63 | | 77·5 | | 60·68 | |
| | | 0·13 | | 2·3 | | 0·08 | | 1·8 | | 0·05 |
| Oct. 8 | 44·06 | | 71·6 | | 58·55 | | 75·7 | | 60·63 | |
| | | 0·05 | | 2·3 | | 0·04 | | 2·2 | | 0·02 |
| 18 | 44·01 | | 69·3 | | 58·51 | | 73·5 | | 60·61 | |
| | | 0·05 | | 2·4 | | 0·01 | | 2·5 | | 0·04 |
| 28 | 44·06 | | 66·9 | | 58·52 | | 71·0 | | 60·65 | |
| | | 0·14 | | 2·4 | | 0·07 | | 3·0 | | 0·09 |
| Nov. 7 | *44·20 | | 64·5 | | *58·59 | | 68·0 | | *60·74 | |
| | | 0·24 | | 2·0 | | 0·11 | | 2·9 | | 0·14 |
| 17 | 44·44 | | 62·5 | | 58·70 | | 65·1 | | 60·88 | |
| | | 0·32 | | 1·7 | | 0·17 | | 3·0 | | 0·19 |
| 27 | 44·76 | | 60·8 | | 58·87 | | 62·1 | | 61·07 | |
| | | 0·40 | | 1·3 | | 0·21 | | 3·0 | | 0·23 |
| Dec. 7 | 45·16 | | 59·5 | | 59·08 | | 59·1 | | 61·30 | |
| | | 0·47 | | 0·8 | | 0·27 | | 3·0 | | 0·28 |
| 17 | 45·63 | | 58·7 | | 59·35 | | 56·1 | | 61·58 | |
| | | 0·52 | | 0·4 | | 0·29 | | 2·8 | | 0·30 |
| 27 | 46·15 | | 58·3 | | 59·64 | | 53·3 | | 61·88 | |
| | | 0·56 | | 0·1 | | 0·33 | | 2·6 | | 0·33 |
| 37 | 46·71 | | 58·4 | | 59·97 | | 50·7 | | 62·21 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| ay the nth. | β Ursæ Minoris. | | | | β Libræ. | | | | α Coronæ Borealis. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *South.* | | R. A. | | Dec. *North.* | |
| | h m 14 51 | | ° ′ 74 48 | | h m 15 8 | | ° ′ 8 47 | | h m 15 27 | | ° ′ 27 15 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| . 1 | 13·73 | | 25·8 | | 20·38 | | 7·2 | | 51·56 | | 24·6 | |
| 11 | 14·51 | 0·78 | 23·4 | 2·4 | 20·70 | 0·32 | 8·9 | 1·7 | 51·87 | 0·31 | 22·0 | 2·6 |
| 21 | 15·35 | 0·84 | 21·7 | 1·7 | 21·03 | 0·33 | 10·6 | 1·7 | 52·19 | 0·32 | 19·7 | 2·3 |
| 31 | 16·24 | 0·89 | 20·6 | 1·1 | 21·36 | 0·33 | 12·3 | 1·7 | 52·52 | 0·33 | 17·8 | 1·9 |
| | | 0·90 | | 0·5 | | 0·33 | | 1·5 | | 0·34 | | 1·5 |
| b. 10 | 17·14 | | 20·1 | | 21·69 | | 13·8 | | 52·86 | | 16·3 | |
| 20 | 18·01 | 0·87 | 20·3 | 0·2 | 22·00 | 0·31 | 15·2 | 1·4 | 53·19 | 0·33 | 15·4 | 0·9 |
| ar. 2 | 18·83 | 0·82 | 21·2 | 0·9 | 22·30 | 0·30 | 16·3 | 1·1 | 53·51 | 0·32 | 15·0 | 0·4 |
| 12 | 19·57 | 0·74 | 22·7 | 1·5 | 22·58 | 0·28 | 17·3 | 1·0 | 53·81 | 0·30 | 15·0 | 0·0 |
| | | 0·64 | | 2·0 | | 0·25 | | 0·7 | | 0·27 | | 0·6 |
| 22 | 20·21 | | 24·7 | | 22·83 | | 18·0 | | 54·08 | | 15·6 | |
| or. 1 | 20·73 | 0·52 | 27·2 | 2·5 | 23·05 | 0·22 | 18·5 | 0·5 | 54·32 | 0·24 | 16·6 | 1·0 |
| 11 | 21·10 | 0·37 | 30·0 | 2·8 | 23·25 | 0·20 | 18·8 | 0·3 | 54·53 | 0·21 | 18·1 | 1·5 |
| 21 | 21·35 | 0·25 | 33·0 | 3·0 | 23·42 | 0·17 | 18·9 | 0·1 | 54·71 | 0·18 | 19·8 | 1·7 |
| | | 0·09 | | 3·1 | | 0·15 | | 0·0 | | 0·14 | | 2·0 |
| ay 1 | 21·44 | | 36·1 | | 23·57 | | 18·9 | | 54·85 | | 21·8 | |
| 11 | 21·39 | 0·05 | 39·2 | 3·1 | 23·68 | 0·11 | 18·7 | 0·2 | 54·96 | 0·11 | 23·9 | 2·1 |
| 21 | 21·20 | 0·19 | 42·2 | 3·0 | 23·77 | 0·09 | 18·4 | 0·3 | 55·04 | 0·08 | 26·1 | 2·2 |
| 31 | 20·89 | 0·31 | 45·0 | 2·8 | 23·82 | 0·05 | 18·0 | 0·4 | 55·08 | 0·04 | 28·3 | 2·2 |
| | | 0·43 | | 2·4 | | 0·03 | | 0·4 | | 0·01 | | 2·1 |
| ne 10 | 20·46 | | 47·4 | | 23·85 | | 17·6 | | 55·09 | | 30·4 | |
| 20 | 19·92 | 0·54 | 49·5 | 2·1 | 23·85 | 0·00 | 17·2 | 0·4 | 55·06 | 0·03 | 32·4 | 2·0 |
| 30 | 19·30 | 0·62 | 51·2 | 1·7 | 23·82 | 0·03 | 16·7 | 0·5 | 55·01 | 0·05 | 34·1 | 1·7 |
| ly 10 | 18·61 | 0·69 | 52·3 | 1·1 | 23·77 | 0·05 | 16·2 | 0·5 | 54·92 | 0·09 | 35·6 | 1·5 |
| | | 0·75 | | 0·7 | | 0·08 | | 0·5 | | 0·12 | | 1·3 |
| 20 | 17·86 | | 53·0 | | 23·69 | | 15·7 | | 54·80 | | 36·9 | |
| 30 | 17·07 | 0·79 | 53·2 | 0·2 | 23·60 | 0·09 | 15·3 | 0·4 | 54·66 | 0·14 | 37·8 | 0·9 |
| ug. 9 | 16·27 | 0·80 | 52·8 | 0·4 | 23·47 | 0·13 | 14·9 | 0·4 | 54·51 | 0·15 | 38·4 | 0·6 |
| 19 | 15·46 | 0·81 | 51·9 | 0·9 | 23·34 | 0·13 | 14·5 | 0·4 | 54·33 | 0·18 | 38·6 | 0·2 |
| | | 0·78 | | 1·4 | | 0·13 | | 0·4 | | 0·17 | | 0·1 |
| 29 | 14·68 | | 50·5 | | 23·21 | | 14·1 | | 54·16 | | 38·5 | |
| ept. 8 | 13·94 | 0·74 | 48·6 | 1·9 | 23·07 | 0·14 | 13·9 | 0·2 | 53·98 | 0·18 | 38·0 | 0·5 |
| 18 | 13·25 | 0·69 | 46·3 | 2·3 | 22·95 | 0·12 | 13·7 | 0·2 | 53·81 | 0·17 | 37·2 | 0·8 |
| 28 | 12·64 | 0·61 | 43·6 | 2·7 | 22·85 | 0·10 | 13·6 | 0·1 | 53·66 | 0·15 | 35·9 | 1·3 |
| | | 0·52 | | 3·2 | | 0·07 | | 0·1 | | 0·13 | | 1·6 |
| ct. 8 | 12·12 | | 40·4 | | 22·78 | | 13·7 | | 53·53 | | 34·3 | |
| 18 | 11·72 | 0·40 | 37·0 | 3·4 | 22·74 | 0·04 | 13·9 | 0·2 | 53·45 | 0·08 | 32·4 | 1·9 |
| 28 | 11·44 | 0·28 | 33·3 | 3·7 | 22·75 | 0·01 | 14·3 | 0·4 | 53·40 | 0·05 | 30·2 | 2·2 |
| ov. 7 | *11·31 | 0·13 | 29·1 | 4·2 | 22·81 | 0·06 | 14·9 | 0·6 | 53·40 | 0·00 | 27·7 | 2·5 |
| | | 0·03 | | 3·8 | * | 0·10 | | 0·9 | * | 0·06 | | 3·0 |
| 17 | 11·34 | | 25·3 | | 22·91 | | 15·8 | | 53·46 | | 24·7 | |
| 27 | 11·52 | 0·18 | 21·4 | 3·9 | 23·07 | 0·16 | 16·8 | 1·0 | 53·57 | 0·11 | 21·8 | 2·9 |
| ec. 7 | 11·86 | 0·34 | 17·8 | 3·6 | 23·27 | 0·20 | 18·1 | 1·3 | 53·73 | 0·16 | 18·8 | 3·0 |
| 17 | 12·34 | 0·48 | 14·3 | 3·5 | 23·52 | 0·25 | 19·5 | 1·4 | 53·95 | 0·22 | 15·8 | 3·0 |
| | | 0·62 | | 3·0 | | 0·28 | | 1·6 | | 0·26 | | 3·0 |
| 27 | 12·96 | | 11·3 | | 23·80 | | 21·1 | | 54·21 | | 12·8 | |
| 37 | 13·68 | 0·72 | 8·7 | 2·6 | 24·11 | 0·31 | 22·8 | 1·7 | 54·49 | 0·28 | 10·1 | 2·7 |

## APPARENT PLACES OF THE PRINCIPAL FIXED STA
### FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | α Serpentis. | | | | ζ Ursæ Minoris. | | | | β¹ Scor | |
|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *North.* | | R. A. | |
| | h m 15 36 | | ° ′ 6 55 | | h m 15 49 | | ° ′ 78 16 | | h m 15 56 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s |
| Jan. 1 | 19·65 | 0·29 | 64·0 | 2·1 | 54·04 | 0·76 | 49·5 | 2·8 | 4·10 | 0·30 |
| 11 | 19·94 | 0·31 | 61·9 | 2·0 | 54·80 | 0·91 | 46·7 | 2·4 | 4·40 | 0·33 |
| 21 | 20·25 | 0·32 | 59·9 | 1·8 | 55·71 | 1·02 | 44·3 | 1·8 | 4·73 | 0·34 |
| 31 | 20·57 | | 58·1 | | 56·73 | | 42·5 | | 5·07 | |
| | | 0·32 | | 1·5 | | 1·08 | | 1·1 | | 0·34 |
| Feb. 10 | 20·89 | 0·31 | 56·6 | 1·2 | 57·81 | 1·11 | 41·4 | 0·5 | 5·41 | 0·34 |
| 20 | 21·20 | 0·30 | 55·4 | 0·8 | 58·92 | 1·09 | 40·9 | 0·2 | 5·75 | 0·33 |
| Mar. 2 | 21·50 | 0·28 | 54·6 | 0·5 | 60·01 | 1·05 | 41·1 | 0·8 | 6·08 | 0·31 |
| 12 | 21·78 | | 54·1 | | 61·06 | | 41·9 | | 6·39 | |
| | | 0·27 | | 0·1 | | 0·95 | | 1·4 | | 0·29 |
| 22 | 22·05 | 0·24 | 54·0 | 0·2 | 62·01 | 0·83 | 43·3 | 2·0 | 6·68 | 0·28 |
| Apr. 1 | 22·29 | 0·21 | 54·2 | 0·6 | 62·84 | 0·69 | 45·3 | 2·5 | 6·96 | 0·25 |
| 11 | 22·50 | 0·18 | 54·8 | 0·8 | 63·53 | 0·52 | 47·8 | 2·7 | 7·21 | 0·22 |
| 21 | 22·68 | | 55·6 | | 64·05 | | 50·5 | | 7·43 | |
| | | 0·16 | | 0·9 | | 0·35 | | 3·0 | | 0·20 |
| May 1 | 22·84 | 0·13 | 56·5 | 1·2 | 64·40 | 0·16 | 53·5 | 3·2 | 7·63 | 0·17 |
| 11 | 22·97 | 0·11 | 57·7 | 1·3 | 64·56 | 0·03 | 56·7 | 3·2 | 7·80 | 0·15 |
| 21 | 23·08 | 0·07 | 59·0 | 1·2 | 64·53 | 0·21 | 59·9 | 3·0 | 7·95 | 0·11 |
| 31 | 23·15 | | 60·2 | | 64·32 | | 62·9 | | 8·06 | |
| | | 0·04 | | 1·3 | | 0·39 | | 2·9 | | 0·03 |
| June 10 | 23·19 | 0·01 | 61·5 | 1·2 | 63·93 | 0·54 | 65·8 | 2·7 | 8·14 | 0·04 |
| 20 | 23·20 | 0·02 | 62·7 | 1·3 | 63·39 | 0·69 | 68·5 | 2·3 | 8·18 | 0·01 |
| 30 | 23·18 | 0·05 | 64·0 | 1·0 | 62·70 | 0·83 | 70·8 | 1·8 | 8·19 | 0·03 |
| July 10 | 23·13 | | 65·0 | | 61·87 | | 72·6 | | 8·16 | |
| | | 0·08 | | 0·9 | | 0·93 | | 1·5 | | 0·06 |
| 20 | 23·05 | 0·10 | 65·9 | 0·7 | 60·94 | 1·01 | 74·1 | 1·0 | 8·10 | 0·09 |
| 30 | 22·95 | 0·12 | 66·6 | 0·6 | 59·93 | 1·09 | 75·1 | 0·4 | 8·01 | 0·11 |
| Aug. 9 | 22·83 | 0·14 | 67·2 | 0·4 | 58·84 | 1·12 | 75·5 | 0·0 | 7·90 | 0·14 |
| 19 | 22·69 | | 67·6 | | 57·72 | | 75·5 | | 7·76 | |
| | | 0·14 | | 0·2 | | 1·13 | | 0·6 | | 0·14 |
| 29 | 22·55 | 0·15 | 67·8 | 0·0 | 56·59 | 1·12 | 74·9 | 1·1 | 7·62 | 0·16 |
| Sept. 8 | 22·40 | 0·14 | 67·8 | 0·3 | 55·47 | 1·08 | 73·8 | 1·5 | 7·46 | 0·14 |
| 18 | 22·26 | 0·12 | 67·5 | 0·5 | 54·39 | 1·02 | 72·3 | 2·1 | 7·32 | 0·14 |
| 28 | 22·14 | | 67·0 | | 53·37 | | 70·2 | | 7·18 | |
| | | 0·10 | | 0·7 | | 0·92 | | 2·4 | | 0·11 |
| Oct. 8 | 22·04 | 0·07 | 66·3 | 1·0 | 52·45 | 0·81 | 67·8 | 2·9 | 7·07 | 0·08 |
| 18 | 21·97 | 0·03 | 65·3 | 1·2 | 51·64 | 0·66 | 64·9 | 3·2 | 6·99 | 0·03 |
| 28 | 21·94 | 0·01 | 64·1 | 1·4 | 50·98 | 0·50 | 61·7 | 3·5 | 6·96 | 0·01 |
| Nov. 7 | 21·95 | | 62·7 | | 50·48 | | 58·2 | | 6·97 | |
| | * | 0·07 | | 1·9 | | 0·31 | | 3·6 | | 0·06 |
| 17 | 22·02 | 0·12 | 60·8 | 1·9 | *50·17 | 0·12 | 54·6 | 4·1 | *7·03 | 0·13 |
| 27 | 22·14 | 0·17 | 58·9 | 2·0 | 50·05 | 0·11 | 50·5 | 3·8 | 7·16 | 0·17 |
| Dec. 7 | 22·31 | 0·21 | 56·9 | 2·2 | 50·16 | 0·31 | 46·7 | 3·6 | 7·33 | 0·22 |
| 17 | 22·52 | | 54·7 | | 50·47 | | 43·1 | | 7·55 | |
| | | 0·25 | | 2·1 | | 0·50 | | 3·4 | | 0·26 |
| 27 | 22·77 | 0·28 | 52·6 | 2·2 | 50·97 | 0·69 | 39·7 | 3·1 | 7·81 | 0·29 |
| 37 | 23·05 | | 50·4 | | 51·66 | | 36·6 | | 8·10 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | δ Ophiuchi. | | | | α Scorpii. (*Antares*) | | | | η Draconis. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *South.* | | R. A. | | Dec. *South.* | | R. A. | | Dec. *North.* | |
| | h m 16 5 | s | ° ′ 3 16 | ″ | h m 16 19 | s | ° ′ 26 4 | ″ | h m 16 21 | s | ° ′ 61 52 | ″ |
| Jan. 1 | s 53·88 | s 0·28 | ″ 32·9 | ″ 1·7 | s 31·55 | s 0·31 | ″ 8·9 | ″ 0·5 | s 47·41 | s 0·35 | ″ 28·8 | ″ 3·2 |
| 11 | 54·16 | 0·30 | 34·6 | 1·7 | 31·86 | 0·33 | 9·4 | 0·7 | 47·76 | 0·41 | 25·6 | 2·8 |
| 21 | 54·46 | 0·32 | 36·3 | 1·5 | 32·19 | 0·34 | 10·1 | 0·9 | 48·17 | 0·47 | 22·8 | 2·3 |
| 31 | 54·78 | | 37·8 | | 32·53 | | 11·0 | | 48·64 | | 20·5 | |
| | | 0·32 | | 1·4 | | 0·36 | | 0·9 | | 0·50 | | 1·7 |
| Feb. 10 | 55·10 | 0·31 | 39·2 | 1·2 | 32·89 | 0·35 | 11·9 | 0·9 | 49·14 | 0·52 | 18·8 | 1·1 |
| 20 | 55·41 | 0·31 | 40·4 | 0·9 | 33·24 | 0·35 | 12·8 | 0·9 | 49·66 | 0·53 | 17·7 | 0·4 |
| Mar. 2 | 55·72 | 0·30 | 41·3 | 0·6 | 33·59 | 0·33 | 13·7 | 0·9 | 50·19 | 0·50 | 17·3 | 0·2 |
| 12 | 56·02 | | 41·9 | | 33·92 | | 14·6 | | 50·69 | | 17·5 | |
| | | 0·28 | | 0·4 | | 0·32 | | 0·9 | | 0·48 | | 1·0 |
| 22 | 56·30 | 0·26 | 42·3 | 0·1 | 34·24 | 0·31 | 15·5 | 0·8 | 51·17 | 0·44 | 18·5 | 1·5 |
| Apr. 1 | 56·56 | 0·24 | 42·4 | 0·1 | 34·55 | 0·28 | 16·3 | 0·7 | 51·61 | 0·39 | 20·0 | 2·0 |
| 11 | 56·80 | 0·21 | 42·3 | 0·4 | 34·83 | 0·26 | 17·0 | 0·6 | 52·00 | 0·33 | 22·0 | 2·5 |
| 21 | 57·01 | | 41·9 | | 35·09 | | 17·6 | | 52·33 | | 24·5 | |
| | | 0·19 | | 0·5 | | 0·22 | | 0·6 | | 0·26 | | 2·8 |
| May 1 | 57·20 | 0·17 | 41·4 | 0·7 | 35·32 | 0·20 | 18·2 | 0·6 | 52·59 | 0·19 | 27·3 | 3·1 |
| 11 | 57·37 | 0·14 | 40·7 | 0·7 | 35·52 | 0·18 | 18·8 | 0·5 | 52·78 | 0·12 | 30·4 | 3·2 |
| 21 | 57·51 | 0·10 | 40·0 | 0·9 | 35·70 | 0·14 | 19·3 | 0·4 | 52·90 | 0·03 | 33·6 | 3·2 |
| 31 | 57·61 | | 39·1 | | 35·84 | | 19·7 | | 52·93 | | 36·8 | |
| | | 0·08 | | 0·8 | | 0·10 | | 0·4 | | 0·03 | | 3·1 |
| June 10 | 57·69 | 0·04 | 38·3 | 0·9 | 35·94 | 0·07 | 20·1 | 0·4 | 52·90 | 0·11 | 39·9 | 3·0 |
| 20 | 57·73 | 0·01 | 37·4 | 0·8 | 36·01 | 0·03 | 20·5 | 0·4 | 52·79 | 0·18 | 42·9 | 2·7 |
| 30 | 57·74 | 0·02 | 36·6 | 0·7 | 36·04 | 0·01 | 20·9 | 0·2 | 52·61 | 0·24 | 45·6 | 2·4 |
| July 10 | 57·72 | | 35·9 | | 36·03 | | 21·1 | | 52·37 | | 48·0 | |
| | | 0·06 | | 0·7 | | 0·05 | | 0·2 | | 0·30 | | 2·0 |
| 20 | 57·66 | 0·08 | 35·2 | 0·6 | 35·98 | 0·08 | 21·3 | 0·1 | 52·07 | 0·35 | 50·0 | 1·5 |
| 30 | 57·58 | 0·11 | 34·6 | 0·6 | 35·90 | 0·11 | 21·4 | 0·0 | 51·72 | 0·39 | 51·5 | 1·1 |
| Aug. 9 | 57·47 | 0·13 | 34·0 | 0·4 | 35·79 | 0·14 | 21·4 | 0·1 | 51·33 | 0·43 | 52·6 | 0·7 |
| 19 | 57·34 | | 33·6 | | 35·65 | | 21·3 | | 50·90 | | 53·3 | |
| | | 0·14 | | 0·3 | | 0·15 | | 0·2 | | 0·44 | | 0·1 |
| 29 | 57·20 | 0·16 | 33·3 | 0·2 | 35·50 | 0·17 | 21·1 | 0·3 | 50·46 | 0·46 | 53·4 | 0·4 |
| Sept. 8 | 57·04 | 0·14 | 33·1 | 0·0 | 35·33 | 0·16 | 20·8 | 0·4 | 50·00 | 0·45 | 53·0 | 1·0 |
| 18 | 56·90 | 0·12 | 33·1 | 0·1 | 35·17 | 0·15 | 20·4 | 0·5 | 49·55 | 0·43 | 52·0 | 1·4 |
| 28 | 56·78 | | 33·2 | | 35·02 | | 19·9 | | 49·12 | | 50·6 | |
| | | 0·12 | | 0·3 | | 0·14 | | 0·5 | | 0·40 | | 1·9 |
| Oct. 8 | 56·66 | 0·09 | 33·5 | 0·4 | 34·88 | 0·09 | 19·4 | 0·5 | 48·72 | 0·35 | 48·7 | 2·4 |
| 18 | 56·57 | 0·05 | 33·9 | 0·6 | 34·79 | 0·06 | 18·9 | 0·6 | 48·37 | 0·29 | 46·3 | 2·8 |
| 28 | 56·52 | 0·00 | 34·5 | 0·8 | 34·73 | 0·01 | 18·3 | 0·5 | 48·08 | 0·22 | 43·5 | 3·1 |
| Nov. 7 | 56·52 | | 35·3 | | 34·72 | | 17·8 | | 47·86 | | 40·4 | |
| | | 0·04 | | 1·0 | | 0·04 | | 0·3 | | 0·13 | | 3·4 |
| 17 | 56·56 | 0·10 | 36·3 | 1·3 | 34·76 | 0·10 | 17·5 | 0·3 | 47·73 | 0·05 | 37·0 | 4·0 |
| 27 | *56·66 | 0·15 | 37·6 | 1·4 | *34·86 | 0·16 | 17·2 | 0·0 | *47·68 | 0·05 | 33·0 | 3·8 |
| Dec. 7 | 56·81 | 0·19 | 39·0 | 1·5 | 35·02 | 0·21 | 17·2 | 0·1 | 47·73 | 0·14 | 29·2 | 3·7 |
| 17 | 57·00 | | 40·5 | | 35·23 | | 17·3 | | 47·87 | | 25·5 | |
| | | 0·23 | | 1·7 | | 0·25 | | 0·3 | | 0·23 | | 3·6 |
| 27 | 57·23 | 0·27 | 42·2 | 1·6 | 35·48 | 0·29 | 17·6 | 0·4 | 48·10 | 0·32 | 21·9 | 3·4 |
| 37 | 57·50 | | 43·8 | | 35·77 | | 18·0 | | 48·42 | | 18·5 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | α Trianguli Australis. | | | | ε Ursæ Minoris. | | | |
|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *South*. | | R. A. | | Dec. *North*. | |
| | 16h | | 68° | | 17h | | 82° | |
| | m s | s | ′ ″ | ″ | m s | s | ′ ″ | ″ |
| Jan. 1 | 31 37·72 | | 43 10·8 | | 2 33·58 | | 17 10·2 | |
| | | 0·62 | | 1·5 | | 0·65 | | 3·2 |
| 11 | 38·34 | | 9·3 | | 34·23 | | 6·9 | |
| | | 0·70 | | 1·1 | | 0·93 | | 2·9 |
| 21 | 39·04 | | 8·2 | | 35·16 | | 4·0 | |
| | | 0·74 | | 0·7 | | 1·17 | | 2·3 |
| 31 | 39·78 | | 7·5 | | 36·33 | | 17 1·5 | |
| | | 0·77 | | 0·3 | | 1·36 | | 2·9 |
| Feb. 10 | 40·55 | | 7·2 | | 37·69 | | 16 59·5 | |
| | | 0·79 | | 0·1 | | 1·51 | | 1·4 |
| 20 | 41·34 | | 7·3 | | 39·20 | | 58·1 | |
| | | 0·79 | | 0·6 | | 1·59 | | 0·7 |
| Mar. 2 | 42·13 | | 7·9 | | 40·79 | | 57·4 | |
| | | 0·78 | | 0·9 | | 1·60 | | 0·1 |
| 12 | 42·91 | | 8·8 | | 42·39 | | 57·3 | |
| | | 0·74 | | 1·3 | | 1·58 | | 0·6 |
| 22 | 43·65 | | 10·1 | | 43·97 | | 57·9 | |
| | | 0·71 | | 1·6 | | 1·47 | | 1·2 |
| Apr. 1 | 44·36 | | 11·7 | | 45·44 | | 16 59·1 | |
| | | 0·65 | | 1·9 | | 1·32 | | 1·7 |
| 11 | 45·01 | | 13·6 | | 46·76 | | 17 0·8 | |
| | | 0·60 | | 2·1 | | 1·13 | | 2·2 |
| 21 | 45·61 | | 15·7 | | 47·89 | | 3·0 | |
| | | 0·53 | | 2·3 | | 0·91 | | 2·6 |
| May 1 | 46·14 | | 18·0 | | 48·80 | | 5·6 | |
| | | 0·46 | | 2·5 | | 0·65 | | 2·9 |
| 11 | 46·60 | | 20·5 | | 49·45 | | 8·5 | |
| | | 0·37 | | 2·6 | | 0·37 | | 3·2 |
| 21 | 46·97 | | 23·1 | | 49·82 | | 11·7 | |
| | | 0·28 | | 2·6 | | 0·09 | | 3·1 |
| 31 | 47·25 | | 25·7 | | 49·91 | | 14·8 | |
| | | 0·19 | | 2·6 | | 0·19 | | 3·2 |
| June 10 | 47·44 | | 28·3 | | 49·72 | | 18·0 | |
| | | 0·09 | | 2·5 | | 0·47 | | 3·1 |
| 20 | 47·53 | | 30·8 | | 49·25 | | 21·1 | |
| | | 0·01 | | 2·5 | | 0·73 | | 2·9 |
| 30 | 47·52 | | 33·3 | | 48·52 | | 24·0 | |
| | | 0·10 | | 2·2 | | 0·98 | | 2·7 |
| July 10 | 47·42 | | 35·5 | | 47·54 | | 26·7 | |
| | | 0·20 | | 1·9 | | 1·20 | | 2·3 |
| 20 | 47·22 | | 37·4 | | 46·34 | | 29·0 | |
| | | 0·29 | | 1·6 | | 1·40 | | 1·9 |
| 30 | 46·93 | | 39·0 | | 44·94 | | 30·9 | |
| | | 0·36 | | 1·3 | | 1·55 | | 1·5 |
| Aug. 9 | 46·57 | | 40·3 | | 43·39 | | 32·4 | |
| | | 0·42 | | 0·8 | | 1·69 | | 1·0 |
| 19 | 46·15 | | 41·1 | | 41·70 | | 33·4 | |
| | | 0·46 | | 0·3 | | 1·78 | | 0·6 |
| 29 | 45·69 | | 41·4 | | 39·92 | | 34·0 | |
| | | 0·48 | | 0·1 | | 1·83 | | 0·0 |
| Sept. 8 | 45·21 | | 41·3 | | 38·09 | | 34·0 | |
| | | 0·48 | | 0·6 | | 1·85 | | 0·4 |
| 18 | 44·73 | | 40·7 | | 36·24 | | 33·6 | |
| | | 0·45 | | 1·1 | | 1·81 | | 0·9 |
| 28 | 44·28 | | 39·6 | | 34·43 | | 32·7 | |
| | | 0·40 | | 1·5 | | 1·75 | | 1·5 |
| Oct. 8 | 43·88 | | 38·1 | | 32·68 | | 31·2 | |
| | | 0·33 | | 1·8 | | 1·63 | | 1·9 |
| 18 | 43·55 | | 36·3 | | 31·05 | | 29·3 | |
| | | 0·24 | | 2·2 | | 1·47 | | 2·3 |
| 28 | 43·31 | | 34·1 | | 29·58 | | 27·0 | |
| | | 0·13 | | 2·4 | | 1·27 | | 2·7 |
| Nov. 7 | 43·18 | | 31·7 | | 28·31 | | 24·3 | |
| | | 0·01 | | 2·5 | | 1·05 | | 3·0 |
| 17 | 43·17 | | 29·2 | | 27·26 | | 21·3 | |
| | | 0·11 | | 2·6 | | 0·77 | | 3·4 |
| 27 | 43·28 | | 26·6 | | 26·49 | | 17·9 | |
| | * | 0·26 | | 2·7 | | 0·47 | | 3·4 |
| Dec. 7 | 43·54 | | 23·9 | | 26·02 | | 14·5 | |
| | | 0·38 | | 2·3 | * | 0·17 | | 4·0 |
| 17 | 43·92 | | 21·6 | | 25·85 | | 10·5 | |
| | | 0·49 | | 2·0 | | 0·18 | | 3·5 |
| 27 | 44·41 | | 19·6 | | 26·03 | | 7·0 | |
| | | 0·58 | | 1·8 | | 0·49 | | 3·1 |
| 37 | 31 44·99 | | 43 17·8 | | 2 26·52 | | 17 3·9 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | α Herculis. R. A. | | α Herculis. Dec. North. | | σ Octantis. R. A. | | σ Octantis. Dec. South. | |
|---|---|---|---|---|---|---|---|---|
| | 17h | | 14° | | 17h | | 89° | |
| | m s | s | ′ ″ | ″ | m s | s | ′ ″ | ″ |
| 1. 1 | 7 17·36 | | 34 33·9 | | 8 50·92 | | 15 44·6 | |
| | | 0·23 | | 2·3 | | 12·52 | | 2·6 |
| 11 | 17·59 | | 31·6 | | 9 3·44 | | 42·0 | |
| | | 0·25 | | 2·2 | | 15·01 | | 2·2 |
| 21 | 17·84 | | 29·4 | | 18·45 | | 39·8 | |
| | | 0·28 | | 2·0 | | 17·04 | | 1·8 |
| 31 | 18·12 | | 27·4 | | 35·49 | | 38·0 | |
| | | 0·29 | | 1·6 | | 18·62 | | 1·3 |
| b. 10 | 18·41 | | 25·8 | | 9 54·11 | | 36·7 | |
| | | 0·31 | | 1·3 | | 19·76 | | 0·8 |
| 20 | 18·72 | | 24·5 | | 10 13·87 | | 35·9 | |
| | | 0·30 | | 0·9 | | 20·34 | | 0·3 |
| ar. 2 | 19·02 | | 23·6 | | 34·21 | | 35·6 | |
| | | 0·31 | | 0·5 | | 20·49 | | 0·2 |
| 12 | 19·33 | | 23·1 | | 10 54·70 | | 35·8 | |
| | | 0·29 | | 0·0 | | 20·25 | | 0·7 |
| 22 | 19·62 | | 23·1 | | 11 14·95 | | 36·5 | |
| | | 0·29 | | 0·4 | | 19·51 | | 1·1 |
| r. 1 | 19·91 | | 23·5 | | 34·46 | | 37·6 | |
| | | 0·27 | | 0·8 | | 18·42 | | 1·6 |
| 11 | 20·18 | | 24·3 | | 11 52·88 | | 39·2 | |
| | | 0·26 | | 1·1 | | 16·94 | | 2·0 |
| 21 | 20·44 | | 25·4 | | 12 9·82 | | 41·2 | |
| | | 0·23 | | 1·5 | | 15·13 | | 2·3 |
| ay 1 | 20·67 | | 26·9 | | 24·95 | | 43·5 | |
| | | 0·21 | | 1·7 | | 13·04 | | 2·6 |
| 11 | 20·88 | | 28·6 | | 37·99 | | 46·1 | |
| | | 0·18 | | 1·8 | | 10·66 | | 2·9 |
| 21 | 21·06 | | 30·4 | | 48·65 | | 49·0 | |
| | | 0·15 | | 2·0 | | 8·09 | | 3·1 |
| 31 | 21·21 | | 32·4 | | 12 56·74 | | 52·1 | |
| | | 0·11 | | 1·9 | | 5·36 | | 3·1 |
| ne 10 | 21·32 | | 34·3 | | 13 2·10 | | 55·2 | |
| | | 0·08 | | 2·0 | | 2·50 | | 3·2 |
| 20 | 21·40 | | 36·3 | | 4·60 | | 15 58·4 | |
| | | 0·04 | | 1·8 | | 0·38 | | 3·1 |
| 30 | 21·44 | | 38·1 | | 4·22 | | 16 1·5 | |
| | | 0·01 | | 1·8 | | 3·27 | | 3·0 |
| ly 10 | 21·45 | | 39·9 | | 13 0·95 | | 4·5 | |
| | | 0·03 | | 1·5 | | 6·03 | | 2·8 |
| 20 | 21·42 | | 41·4 | | 12 54·92 | | 7·3 | |
| | | 0·07 | | 1·4 | | 8·54 | | 2·4 |
| 30 | 21·35 | | 42·8 | | 46·38 | | 9·7 | |
| | | 0·11 | | 1·1 | | 10·99 | | 2·1 |
| g. 9 | 21·24 | | 43·9 | | 35·39 | | 11·8 | |
| | | 0·13 | | 0·9 | | 12·55 | | 1·6 |
| 19 | 21·11 | | 44·8 | | 22·84 | | 13·4 | |
| | | 0·15 | | 0·5 | | 14·15 | | 1·1 |
| 29 | 20·96 | | 45·3 | | 12 8·69 | | 14·5 | |
| | | 0·17 | | 0·4 | | 15·13 | | 0·5 |
| pt. 8 | 20·79 | | 45·7 | | 11 53·56 | | 15·0 | |
| | | 0·17 | | 0·0 | | 15·48 | | 0·0 |
| 18 | 20·62 | | 45·7 | | 38·08 | | 15·0 | |
| | | 0·18 | | 0·3 | | 15·25 | | 0·7 |
| 28 | 20·44 | | 45·4 | | 22·83 | | 14·3 | |
| | | 0·16 | | 0·6 | | 14·37 | | 1·2 |
| t. 8 | 20·28 | | 44·8 | | 11 8·46 | | 13·1 | |
| | | 0·14 | | 0·9 | | 12·95 | | 1·8 |
| 18 | 20·14 | | 43·9 | | 10 55·51 | | 11·3 | |
| | | 0·11 | | 1·1 | | 10·90 | | 2·3 |
| 28 | 20·03 | | 42·8 | | 44·61 | | 9·0 | |
| | | 0·07 | | 1·5 | | 8·41 | | 2·6 |
| ov. 7 | 19·96 | | 41·3 | | 36·20 | | 6·4 | |
| | | 0·03 | | 1·7 | | 5·51 | | 3·0 |
| 17 | 19·93 | | 39·6 | | 30·69 | | 3·4 | |
| | | 0·01 | | 2·0 | | 2·41 | | 3·2 |
| 27 | 19·94 | | 37·6 | | 28·28 | | 16 0·2 | |
| | | 0·07 | | 2·1 | | 1·05 | | 3·3 |
| ec. 7 | 20·01 | | 35·5 | | 29·33 | | 15 56·9 | |
| | | 0·13 | | 2·5 | | 5·12 | | 3·5 |
| 17 | * 20·14 | | 33·0 | | * 34·45 | | 53·4 | |
| | | 0·16 | | 2·4 | | 7·97 | | 3·0 |
| 27 | 20·30 | | 30·6 | | 42·42 | | 50·4 | |
| | | 0·20 | | 2·3 | | 11·06 | | 2·9 |
| 37 | 7 20·50 | | 34 28·3 | | 10 53·48 | | 15 47·5 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | β Draconis. | | | | α Ophiuchi. | | | | γ Draconis. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *North.* | | R. A. | | Dec. *N* | |
| | h m<br>17 26 | | ° ′<br>52 24 | | h m<br>17 27 | | ° ′<br>12 40 | | h m<br>17 52 | | ° ′<br>51 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | |
| Jan. 1 | 45·99 | | 68·9 | | 26·54 | | 49·9 | | 50·20 | | 24·6 | |
| | | 0·20 | | 3·4 | | 0·21 | | 2·2 | | 0·17 | | |
| 11 | 46·19 | | 65·5 | | 26·75 | | 47·7 | | 50·37 | | 21·2 | |
| | | 0·27 | | 3·2 | | 0·24 | | 2·1 | | 0·24 | | |
| 21 | 46·46 | | 62·3 | | 26·99 | | 45·6 | | 50·61 | | 18·0 | |
| | | 0·33 | | 2·8 | | 0·26 | | 1·9 | | 0·28 | | |
| 31 | 46·79 | | 59·5 | | 27·25 | | 43·7 | | 50·89 | | 15·0 | |
| | | 0·36 | | 2·3 | | 0·29 | | 1·6 | | 0·33 | | |
| Feb. 10 | 47·15 | | 57·2 | | 27·54 | | 42·1 | | 51·22 | | 12·5 | |
| | | 0·39 | | 1·8 | | 0·29 | | 1·3 | | 0·37 | | |
| 20 | 47·54 | | 55·4 | | 27·83 | | 40·8 | | 51·59 | | 10·6 | |
| | | 0·41 | | 1·2 | | 0·30 | | 0·9 | | 0·39 | | |
| Mar. 2 | 47·95 | | 54·2 | | 28·13 | | 39·9 | | 51·98 | | 9·2 | |
| | | 0·41 | | 0·5 | | 0·30 | | 0·5 | | 0·40 | | |
| 12 | 48·36 | | 53·7 | | 28·43 | | 39·4 | | 52·38 | | 8·4 | |
| | | 0·41 | | 0·2 | | 0·30 | | 0·1 | | 0·40 | | |
| 22 | 48·77 | | 53·9 | | 28·73 | | 39·3 | | 52·78 | | 8·3 | |
| | | 0·40 | | 0·8 | | 0·29 | | 0·3 | | 0·41 | | |
| Apr. 1 | 49·17 | | 54·7 | | 29·02 | | 39·6 | | 53·19 | | 8·8 | |
| | | 0·38 | | 1·3 | | 0·29 | | 0·8 | | 0·38 | | |
| 11 | 49·55 | | 56·0 | | 29·31 | | 40·4 | | 53·57 | | 9·9 | |
| | | 0·34 | | 2·0 | | 0·26 | | 1·1 | | 0·36 | | |
| 21 | 49·89 | | 58·0 | | 29·57 | | 41·5 | | 53·93 | | 11·6 | |
| | | 0·31 | | 2·3 | | 0·25 | | 1·3 | | 0·33 | | |
| May 1 | 50·20 | | 60·3 | | 29·82 | | 42·8 | | 54·26 | | 13·8 | |
| | | 0·26 | | 2·8 | | 0·22 | | 1·7 | | 0·29 | | |
| 11 | 50·46 | | 63·1 | | 30·04 | | 44·5 | | 54·55 | | 16·4 | |
| | | 0·22 | | 3·0 | | 0·20 | | 1·7 | | 0·25 | | |
| 21 | 50·68 | | 66·1 | | 30·24 | | 46·2 | | 54·80 | | 19·3 | |
| | | 0·15 | | 3·1 | | 0·17 | | 1·9 | | 0·19 | | |
| 31 | 50·83 | | 69·2 | | 30·41 | | 48·1 | | 54·99 | | 22·5 | |
| | | 0·10 | | 3·3 | | 0·13 | | 2·0 | | 0·14 | | |
| June 10 | 50·93 | | 72·5 | | 30·54 | | 50·1 | | 55·13 | | 25·7 | |
| | | 0·04 | | 3·2 | | 0·10 | | 1·9 | | 0·08 | | |
| 20 | 50·97 | | 75·7 | | 30·64 | | 52·0 | | 55·21 | | 29·0 | |
| | | 0·02 | | 3·1 | | 0·07 | | 1·9 | | 0·02 | | |
| 30 | 50·95 | | 78·8 | | 30·71 | | 53·9 | | 55·23 | | 32·2 | |
| | | 0·08 | | 2·9 | | 0·02 | | 1·7 | | 0·04 | | |
| July 10 | 50·87 | | 81·7 | | 30·73 | | 55·6 | | 55·19 | | 35·3 | |
| | | 0·13 | | 2·7 | | 0·02 | | 1·6 | | 0·10 | | |
| 20 | 50·74 | | 84·4 | | 30·71 | | 57·2 | | 55·09 | | 38·1 | |
| | | 0·19 | | 2·2 | | 0·05 | | 1·4 | | 0·15 | | |
| 30 | 50·55 | | 86·6 | | 30·66 | | 58·6 | | 54·94 | | 40·7 | |
| | | 0·24 | | 2·0 | | 0·09 | | 1·2 | | 0·21 | | |
| Aug. 9 | 50·31 | | 88·6 | | 30·57 | | 59·8 | | 54·73 | | 42·9 | |
| | | 0·28 | | 1·5 | | 0·12 | | 0·9 | | 0·25 | | |
| 19 | 50·03 | | 90·1 | | 30·45 | | 60·7 | | 54·48 | | 44·7 | |
| | | 0·31 | | 1·0 | | 0·14 | | 0·7 | | 0·29 | | |
| 29 | 49·72 | | 91·1 | | 30·31 | | 61·4 | | 54·19 | | 46·1 | |
| | | 0·33 | | 0·6 | | 0·16 | | 0·4 | | 0·32 | | |
| Sept. 8 | 49·39 | | 91·7 | | 30·15 | | 61·8 | | 53·87 | | 47·0 | |
| | | 0·35 | | 0·1 | | 0·18 | | 0·1 | | 0·33 | | |
| 18 | 49·04 | | 91·8 | | 29·97 | | 61·9 | | 53·54 | | 47·4 | |
| | | 0·34 | | 0·5 | | 0·17 | | 0·1 | | 0·34 | | |
| 28 | 48·70 | | 91·3 | | 29·80 | | 61·8 | | 53·20 | | 47·4 | |
| | | 0·34 | | 0·9 | | 0·17 | | 0·5 | | 0·34 | | |
| Oct. 8 | 48·36 | | 90·4 | | 29·63 | | 61·3 | | 52·86 | | 46·8 | |
| | | 0·31 | | 1·4 | | 0·15 | | 0·7 | | 0·31 | | |
| 18 | 48·05 | | 89·0 | | 29·48 | | 60·6 | | 52·55 | | 45·7 | |
| | | 0·27 | | 2·0 | | 0·12 | | 1·0 | | 0·29 | | |
| 28 | 47·78 | | 87·0 | | 29·36 | | 59·6 | | 52·26 | | 44·1 | |
| | | 0·23 | | 2·3 | | 0·08 | | 1·3 | | 0·25 | | |
| Nov. 7 | 47·55 | | 84·7 | | 29·28 | | 58·3 | | 52·01 | | 42·0 | |
| | | 0·17 | | 2·8 | | 0·05 | | 1·5 | | 0·20 | | |
| 17 | 47·38 | | 81·9 | | 29·23 | | 56·8 | | 51·81 | | 39·6 | |
| | | 0·11 | | 3·1 | | 0·00 | | 1·8 | | 0·13 | | |
| 27 | 47·27 | | 78·8 | | 29·23 | | 55·0 | | 51·68 | | 36·7 | |
| | | 0·04 | | 3·6 | | 0·04 | | 2·0 | | 0·08 | | |
| Dec. 7 | 47·23 | | 75·2 | | 29·27 | | 53·0 | | 51·60 | | 33·6 | |
| | | 0·05 | | 3·6 | | 0·11 | | 2·2 | | 0·00 | | |
| 17 | *47·28 | | 71·6 | | *29·38 | | 50·8 | | 51·60 | | 30·2 | |
| | | 0·11 | | 3·5 | | 0·15 | | 2·3 | * | 0·08 | | |
| 27 | 47·39 | | 68·1 | | 29·53 | | 48·5 | | 51·68 | | 26·3 | |
| | | 0·18 | | 3·5 | | 0·19 | | 2·3 | | 0·14 | | |
| 37 | 47·57 | | 64·6 | | 29·72 | | 46·2 | | 51·82 | | 22·9 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | $\mu^1$ Sagittarii. | | | | $\alpha$ Lyræ. (*Vega*) | | | | $\beta$ Lyræ. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *South.* | | R. A. | | Dec. *North.* | | R. A. | | Dec. *North.* | |
| | h m<br>18 4 | | ° ′<br>21 5 | | h m<br>18 31 | | ° ′<br>38 37 | | h m<br>18 44 | | ° ′<br>33 10 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| n. 1 | 6·95 | 0·21 | 42·9 | 0·2 | 27·42 | 0·12 | 63·7 | 3·1 | 6·63 | 0·12 | 39·0 | 3·1 |
| 11 | 7·16 | 0·24 | 43·1 | 0·3 | 27·54 | 0·18 | 60·6 | 3·0 | * 6·75 | 0·16 | 35·9 | 2·9 |
| 21 | 7·40 | 0·27 | 43·4 | 0·2 | 27·72 | 0·21 | 57·6 | 2·8 | 6·91 | 0·20 | 33·0 | 2·6 |
| 31 | 7·67 | | 43·6 | | 27·93 | | 54·8 | | 7·11 | | 30·4 | |
| | | 0·29 | | 0·3 | | 0·26 | | 2·5 | | 0·23 | | 2·3 |
| eb. 10 | 7·96 | 0·31 | 43·9 | 0·2 | 28·19 | 0·28 | 52·3 | 2·0 | 7·34 | 0·27 | 28·1 | 2·0 |
| 20 | 8·27 | 0·32 | 44·1 | 0·2 | 28·47 | 0·31 | 50·3 | 1·6 | 7·61 | 0·29 | 26·1 | 1·5 |
| ar. 2 | 8·59 | 0·32 | 44·3 | 0·1 | 28·78 | 0·34 | 48·7 | 1·0 | 7·90 | 0·30 | 24·6 | 1·0 |
| 12 | 8·91 | | 44·4 | | 29·12 | | 47·7 | | 8·20 | | 23·6 | |
| | | 0·33 | | 0·1 | | 0·33 | | 0·4 | | 0·32 | | 0·5 |
| 22 | 9·24 | 0·33 | 44·3 | 0·0 | 29·45 | 0·34 | 47·3 | 0·2 | 8·52 | 0·33 | 23·1 | 0·1 |
| or. 1 | 9·57 | 0·32 | 44·3 | 0·2 | 29·79 | 0·34 | 47·5 | 0·7 | 8·85 | 0·33 | 23·2 | 0·7 |
| 11 | 9·89 | 0·32 | 44·1 | 0·3 | 30·13 | 0·33 | 48·2 | 1·4 | 9·18 | 0·32 | 23·9 | 1·2 |
| 21 | 10·21 | | 43·8 | | 30·46 | | 49·6 | | 9·50 | | 25·1 | |
| | | 0·30 | | 0·3 | | 0·31 | | 1·8 | | 0·31 | | 1·7 |
| ay 1 | 10·51 | 0·28 | 43·5 | 0·3 | 30·77 | 0·30 | 51·4 | 2·2 | 9·81 | 0·29 | 26·8 | 2·1 |
| 11 | 10·79 | 0·26 | 43·2 | 0·3 | 31·07 | 0·26 | 53·6 | 2·6 | 10·10 | 0·26 | 28·9 | 2·5 |
| 21 | 11·05 | 0·23 | 42·9 | 0·3 | 31·33 | 0·22 | 56·2 | 2·8 | 10·36 | 0·24 | 31·4 | 2·6 |
| 31 | 11·28 | | 42·6 | | 31·55 | | 59·0 | | 10·60 | | 34·0 | |
| | | 0·21 | | 0·3 | | 0·19 | | 3·0 | | 0·20 | | 2·8 |
| ne 10 | 11·49 | 0·16 | 42·3 | 0·2 | 31·74 | 0·14 | 62·0 | 3·1 | 10·80 | 0·15 | 36·8 | 3·0 |
| 20 | 11·65 | 0·13 | 42·1 | 0·1 | 31·88 | 0·10 | 65·1 | 3·0 | 10·95 | 0·12 | 39·8 | 2·9 |
| 30 | 11·78 | 0·08 | 42·0 | 0·1 | 31·98 | 0·05 | 68·1 | 3·0 | 11·07 | 0·07 | 42·7 | 2·9 |
| y 10 | 11·86 | | 41·9 | | 32·03 | | 71·1 | | 11·14 | | 45·6 | |
| | | 0·04 | | 0·0 | | 0·01 | | 2·9 | | 0·02 | | 2·7 |
| 20 | 11·90 | 0·00 | 41·9 | 0·0 | 32·02 | 0·05 | 74·0 | 2·6 | 11·16 | 0·03 | 48·3 | 2·6 |
| 30 | 11·90 | 0·05 | 41·9 | 0·1 | 31·97 | 0·11 | 76·6 | 2·3 | 11·13 | 0·07 | 50·9 | 2·3 |
| g. 9 | 11·85 | 0·08 | 42·0 | 0·0 | 31·86 | 0·14 | 78·9 | 2·0 | 11·06 | 0·12 | 53·2 | 1·9 |
| 19 | 11·77 | | 42·0 | | 31·72 | | 80·9 | | 10·94 | | 55·1 | |
| | | 0·12 | | 0·1 | | 0·18 | | 1·7 | | 0·15 | | 1·7 |
| 29 | 11·65 | 0·14 | 42·1 | 0·1 | 31·54 | 0·22 | 82·6 | 1·3 | 10·79 | 0·19 | 56·8 | 1·3 |
| pt. 8 | 11·51 | 0·17 | 42·2 | 0·0 | 31·32 | 0·24 | 83·9 | 0·8 | 10·60 | 0·20 | 58·1 | 0·9 |
| 18 | 11·34 | 0·17 | 42·2 | 0·0 | 31·08 | 0·25 | 84·7 | 0·4 | 10·40 | 0·23 | 59·0 | 0·4 |
| 28 | 11·17 | | 42·2 | | 30·83 | | 85·1 | | 10·17 | | 59·4 | |
| | | 0·16 | | 0·0 | | 0·25 | | 0·1 | | 0·23 | | 0·1 |
| t. 8 | 11·01 | 0·15 | 42·2 | 0·1 | 30·58 | 0·24 | 85·0 | 0·6 | 9·94 | 0·22 | 59·5 | 0·4 |
| 18 | 10·86 | 0·13 | 42·1 | 0·1 | 30·34 | 0·23 | 84·4 | 1·0 | 9·72 | 0·20 | 59·1 | 0·9 |
| 28 | 10·73 | 0·10 | 42·0 | 0·1 | 30·11 | 0·19 | 83·4 | 1·5 | 9·52 | 0·18 | 58·2 | 1·2 |
| v. 7 | 10·63 | | 41·9 | | 29·92 | | 81·9 | | 9·34 | | 57·0 | |
| | | 0·05 | | 0·1 | | 0·16 | | 1·9 | | 0·15 | | 1·7 |
| 17 | 10·58 | 0·01 | 41·8 | 0·1 | 29·76 | 0·12 | 80·0 | 2·2 | 9·19 | 0·10 | 55·3 | 2·0 |
| 27 | 10·57 | 0·03 | 41·7 | 0·0 | 29·64 | 0·07 | 77·8 | 2·6 | 9·09 | 0·07 | 53·3 | 2·4 |
| c. 7 | 10·60 | 0·09 | 41·7 | 0·0 | 29·57 | 0·00 | 75·2 | 2·9 | 9·02 | 0·01 | 50·9 | 2·6 |
| 17 | 10·69 | | 41·7 | | 29·57 | | 72·3 | | 9·01 | | 48·3 | |
| | * | 0·15 | | 0·1 | | 0·03 | | 3·0 | | 0·04 | | 2·8 |
| 27 | 10·84 | 0·19 | 41·8 | 0·2 | 29·60 | 0·11 | 69·3 | 3·5 | 9·05 | 0·09 | 45·5 | 3·3 |
| 37 | *11·03* | | *42·0* | | * 29·71 | | 65·8 | | * 9·14 | | 42·2 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | ζ Aquilæ. | | | | δ Aquilæ. | | | | γ Aquilæ. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *North.* | | R. A. | | Dec. *North.* | |
| | h m | | ° ′ | | h m | | ° ′ | | h m | | ° ′ | |
| | 18 57 | | 13 37 | | 19 17 | | 2 47 | | 19 38 | | 10 13 | |
| | s | | ″ | | s | | ″ | | s | | ″ | |
| Jan. 1 | 59·31 | | 38·8 | | 21·39 | | 49·1 | | 35·03 | | 26·3 | |
| | | s 0·13 | | ″ 2·2 | | s 0·12 | | ″ 1·6 | | s 0·08 | | ″ 1·7 |
| 11 | *59·44 | | 36·6 | | *21·51 | | 47·5 | | 35·11 | | 24·6 | |
| | | 0·15 | | 2·0 | | 0·14 | | 1·3 | | 0·12 | | 1·9 |
| 21 | 59·59 | | 34·6 | | 21·65 | | 46·2 | | *35·23 | | 22·7 | |
| | | 0·19 | | 1·8 | | 0·18 | | 1·3 | | 0·16 | | 1·6 |
| 31 | 59·78 | | 32·8 | | 21·83 | | 44·9 | | 35·39 | | 21·1 | |
| | | 0·21 | | 1·7 | | 0·20 | | 1·1 | | 0·18 | | 1·4 |
| Feb. 10 | 59·99 | | 31·1 | | 22·03 | | 43·8 | | 35·57 | | 19·7 | |
| | | 0·25 | | 1·3 | | 0·23 | | 0·8 | | 0·21 | | 1·2 |
| 20 | 60·24 | | 29·8 | | 22·26 | | 43·0 | | 35·78 | | 18·5 | |
| | | 0·26 | | 1·1 | | 0·25 | | 0·7 | | 0·23 | | 0·9 |
| Mar. 2 | 60·50 | | 28·7 | | 22·51 | | 42·3 | | 36·01 | | 17·6 | |
| | | 0·28 | | 0·6 | | 0·27 | | 0·3 | | 0·26 | | 0·6 |
| 12 | 60·78 | | 28·1 | | 22·78 | | 42·0 | | 36·27 | | 17·0 | |
| | | 0·29 | | 0·2 | | 0·29 | | 0·0 | | 0·27 | | 0·2 |
| 22 | 61·07 | | 27·9 | | 23·07 | | 42·0 | | 36·54 | | 16·8 | |
| | | 0·29 | | 0·2 | | 0·29 | | 0·3 | | 0·29 | | 0·2 |
| Apr. 1 | 61·36 | | 28·1 | | 23·36 | | 42·3 | | 36·83 | | 17·0 | |
| | | 0·30 | | 0·6 | | 0·30 | | 0·7 | | 0·30 | | 0·6 |
| 11 | 61·66 | | 28·7 | | 23·66 | | 43·0 | | 37·13 | | 17·6 | |
| | | 0·31 | | 1·0 | | 0·30 | | 0·9 | | 0·30 | | 1·0 |
| 21 | 61·97 | | 29·7 | | 23·96 | | 43·9 | | 37·43 | | 18·6 | |
| | | 0·29 | | 1·4 | | 0·30 | | 1·2 | | 0·30 | | 1·3 |
| May 1 | 62·26 | | 31·1 | | 24·26 | | 45·1 | | 37·73 | | 19·9 | |
| | | 0·28 | | 1·7 | | 0·29 | | 1·5 | | 0·30 | | 1·5 |
| 11 | 62·54 | | 32·8 | | 24·55 | | 46·6 | | 38·03 | | 21·4 | |
| | | 0·27 | | 1·9 | | 0·28 | | 1·6 | | 0·29 | | 1·9 |
| 21 | 62·81 | | 34·7 | | 24·83 | | 48·2 | | 38·32 | | 23·3 | |
| | | 0·24 | | 2·0 | | 0·26 | | 1·7 | | 0·27 | | 2·0 |
| 31 | 63·05 | | 36·7 | | 25·09 | | 49·9 | | 38·59 | | 25·3 | |
| | | 0·21 | | 2·2 | | 0·24 | | 1·7 | | 0·25 | | 2·1 |
| June 10 | 63·26 | | 38·9 | | 25·33 | | 51·6 | | 38·84 | | 27·4 | |
| | | 0·19 | | 2·3 | | 0·20 | | 1·8 | | 0·22 | | 2·1 |
| 20 | 63·45 | | 41·2 | | 25·53 | | 53·4 | | 39·06 | | 29·5 | |
| | | 0·14 | | 2·2 | | 0·17 | | 1·7 | | 0·18 | | 2·2 |
| 30 | 63·59 | | 43·4 | | 25·70 | | 55·1 | | 39·24 | | 31·7 | |
| | | 0·10 | | 2·1 | | 0·13 | | 1·7 | | 0·14 | | 2·1 |
| July 10 | 63·69 | | 45·5 | | 25·83 | | 56·8 | | 39·38 | | 33·8 | |
| | | 0·07 | | 2·0 | | 0·09 | | 1·5 | | 0·11 | | 1·9 |
| 20 | 63·76 | | 47·5 | | 25·92 | | 58·3 | | 39·49 | | 35·7 | |
| | | 0·02 | | 1·8 | | 0·05 | | 1·4 | | 0·06 | | 1·9 |
| 30 | 63·78 | | 49·3 | | 25·97 | | 59·7 | | 39·55 | | 37·6 | |
| | | 0·03 | | 1·7 | | 0·00 | | 1·2 | | 0·01 | | 1·6 |
| Aug. 9 | 63·75 | | 51·0 | | 25·97 | | 60·9 | | 39·56 | | 39·2 | |
| | | 0·06 | | 1·4 | | 0·04 | | 1·0 | | 0·03 | | 1·5 |
| 19 | 63·69 | | 52·4 | | 25·93 | | 61·9 | | 39·53 | | 40·7 | |
| | | 0·11 | | 1·2 | | 0·07 | | 0·9 | | 0·06 | | 1·2 |
| 29 | 63·58 | | 53·6 | | 25·86 | | 62·8 | | 39·47 | | 41·9 | |
| | | 0·13 | | 0·9 | | 0·11 | | 0·6 | | 0·11 | | 0·9 |
| Sept. 8 | 63·45 | | 54·5 | | 25·75 | | 63·4 | | 39·36 | | 42·8 | |
| | | 0·15 | | 0·6 | | 0·14 | | 0·4 | | 0·13 | | 0·8 |
| 18 | 63·30 | | 55·1 | | 25·61 | | 63·8 | | 39·23 | | 43·6 | |
| | | 0·17 | | 0·3 | | 0·15 | | 0·2 | | 0·15 | | 0·4 |
| 28 | 63·13 | | 55·4 | | 25·46 | | 64·0 | | 39·08 | | 44·0 | |
| | | 0·18 | | 0·1 | | 0·16 | | 0·0 | | 0·16 | | 0·2 |
| Oct. 8 | 62·95 | | 55·5 | | 25·30 | | 64·0 | | 38·92 | | 44·2 | |
| | | 0·17 | | 0·3 | | 0·17 | | 0·1 | | 0·17 | | 0·1 |
| 18 | 62·78 | | 55·2 | | 25·13 | | 63·9 | | 38·75 | | 44·1 | |
| | | 0·16 | | 0·5 | | 0·14 | | 0·4 | | 0·16 | | 0·3 |
| 28 | 62·62 | | 54·7 | | 24·99 | | 63·5 | | 38·59 | | 43·8 | |
| | | 0·14 | | 0·9 | | 0·13 | | 0·6 | | 0·14 | | 0·6 |
| Nov. 7 | 62·48 | | 53·8 | | 24·86 | | 62·9 | | 38·45 | | 43·2 | |
| | | 0·11 | | 1·1 | | 0·11 | | 0·7 | | 0·12 | | 0·8 |
| 17 | 62·37 | | 52·7 | | 24·75 | | 62·2 | | 38·33 | | 42·4 | |
| | | 0·07 | | 1·4 | | 0·07 | | 0·9 | | 0·10 | | 1·1 |
| 27 | 62·30 | | 51·3 | | 24·68 | | 61·3 | | 38·23 | | 41·3 | |
| | | 0·03 | | 1·6 | | 0·04 | | 1·1 | | 0·06 | | 1·3 |
| Dec. 7 | 62·27 | | 49·7 | | 24·64 | | 60·2 | | 38·17 | | 40·0 | |
| | | 0·01 | | 1·8 | | 0·01 | | 1·2 | | 0·01 | | 1·5 |
| 17 | 62·28 | | 47·9 | | 24·65 | | 59·0 | | 38·16 | | 38·5 | |
| | | 0·05 | | 1·9 | | 0·04 | | 1·3 | | 0·01 | | 1·5 |
| 27 | 62·33 | | 46·0 | | 24·69 | | 57·7 | | 38·17 | | 37·0 | |
| | | 0·11 | | 2·2 | | 0·08 | | 1·4 | | 0·06 | | 1·7 |
| 37 | *62·44 | | 43·8 | | 24·77 | | 56·3 | | 38·23 | | 35·3 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | α Aquilæ. (*Altair*) | | | | β Aquilæ. | | | | $\alpha^2$ Capricorni. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *North.* | | R. A. | | Dec. *South.* | |
| | 19h 42m | | 8° 26′ | | 19h 47m | | 6° 0′ | | 20h 9m | | 13° 2′ | |
| | s | | ″ | ″ | s | | ″ | ″ | s | | ″ | ″ |
| Jan. 1 | 54·38 | | 43·2 | | 23·05 | | 27·5 | | 5·85 | | 26·6 | |
| | | s 0·08 | | 1·6 | | s 0·07 | | 1·5 | | s 0·07 | | 0·3 |
| 11 | 54·46 | | 41·6 | | 23·12 | | 26·0 | | 5·92 | | 26·9 | |
| | | 0·13 | | 1·7 | | 0·13 | | 1·6 | | 0·10 | | 0·3 |
| 21 | *54·59 | | 39·9 | | *23·25 | | 24·4 | | 6·02 | | 27·2 | |
| | | 0·14 | | 1·5 | | 0·14 | | 1·3 | | 0·15 | | 0·1 |
| 31 | 54·73 | | 38·4 | | 23·39 | | 23·1 | | *6·17 | | 27·3 | |
| | | 0·18 | | 1·4 | | 0·18 | | 1·2 | | 0·17 | | 0·1 |
| Feb. 10 | 54·91 | | 37·0 | | 23·57 | | 21·9 | | 6·34 | | 27·4 | |
| | | 0·21 | | 1·1 | | 0·20 | | 1·0 | | 0·20 | | 0·1 |
| 20 | 55·12 | | 35·9 | | 23·77 | | 20·9 | | 6·54 | | 27·3 | |
| | | 0·23 | | 0·8 | | 0·23 | | 0·8 | | 0·23 | | 0·3 |
| Mar. 2 | 55·35 | | 35·1 | | 24·00 | | 20·1 | | 6·77 | | 27·0 | |
| | | 0·26 | | 0·5 | | 0·25 | | 0·4 | | 0·25 | | 0·4 |
| 12 | 55·61 | | 34·6 | | 24·25 | | 19·7 | | 7·02 | | 26·6 | |
| | | 0·27 | | 0·1 | | 0·27 | | 0·1 | | 0·27 | | 0·6 |
| 22 | 55·88 | | 34·5 | | 24·52 | | 19·6 | | 7·29 | | 26·0 | |
| | | 0·28 | | 0·2 | | 0·28 | | 0·3 | | 0·28 | | 0·8 |
| Apr. 1 | 56·16 | | 34·7 | | 24·80 | | 19·9 | | 7·57 | | 25·2 | |
| | | 0·30 | | 0·6 | | 0·30 | | 0·6 | | 0·31 | | 0·9 |
| 11 | 56·46 | | 35·3 | | 25·10 | | 20·5 | | 7·88 | | 24·3 | |
| | | 0·31 | | 1·0 | | 0·30 | | 1·0 | | 0·31 | | 1·2 |
| 21 | 56·77 | | 36·3 | | 25·40 | | 21·5 | | 8·19 | | 23·1 | |
| | | 0·30 | | 1·3 | | 0·31 | | 1·2 | | 0·32 | | 1·2 |
| May 1 | 57·07 | | 37·6 | | 25·71 | | 22·7 | | 8·51 | | 21·9 | |
| | | 0·30 | | 1·5 | | 0·30 | | 1·5 | | 0·32 | | 1·3 |
| 11 | 57·37 | | 39·1 | | 26·01 | | 24·2 | | 8·83 | | 20·6 | |
| | | 0·29 | | 1·8 | | 0·30 | | 1·7 | | 0·32 | | 1·2 |
| 21 | 57·66 | | 40·9 | | 26·31 | | 25·9 | | 9·15 | | 19·3 | |
| | | 0·28 | | 1·9 | | 0·27 | | 1·9 | | 0·30 | | 1·3 |
| 31 | 57·94 | | 42·8 | | 26·58 | | 27·8 | | 9·45 | | 18·0 | |
| | | 0·25 | | 2·1 | | 0·25 | | 1·9 | | 0·29 | | 1·3 |
| June 10 | 58·19 | | 44·9 | | 26·83 | | 29·7 | | 9·74 | | 16·7 | |
| | | 0·22 | | 2·1 | | 0·23 | | 2·0 | | 0·26 | | 1·3 |
| 20 | 58·41 | | 47·0 | | 27·06 | | 31·7 | | 10·00 | | 15·4 | |
| | | 0·19 | | 2·0 | | 0·19 | | 2·0 | | 0·22 | | 1·1 |
| 30 | 58·60 | | 49·0 | | 27·25 | | 33·7 | | 10·22 | | 14·3 | |
| | | 0·15 | | 2·0 | | 0·16 | | 1·9 | | 0·20 | | 0·9 |
| July 10 | 58·75 | | 51·0 | | 27·41 | | 35·6 | | 10·42 | | 13·4 | |
| | | 0·11 | | 1·9 | | 0·11 | | 1·7 | | 0·15 | | 0·8 |
| 20 | 58·86 | | 52·9 | | 27·52 | | 37·3 | | 10·57 | | 12·6 | |
| | | 0·07 | | 1·8 | | 0·07 | | 1·7 | | 0·10 | | 0·6 |
| 30 | 58·93 | | 54·7 | | 27·59 | | 39·0 | | 10·67 | | 12·0 | |
| | | 0·02 | | 1·6 | | 0·03 | | 1·4 | | 0·06 | | 0·5 |
| Aug. 9 | 58·95 | | 56·3 | | 27·62 | | 40·4 | | 10·73 | | 11·5 | |
| | | 0·02 | | 1·4 | | 0·02 | | 1·2 | | 0·02 | | 0·3 |
| 19 | 58·93 | | 57·7 | | 27·60 | | 41·6 | | 10·75 | | 11·2 | |
| | | 0·06 | | 1·1 | | 0·04 | | 1·1 | | 0·03 | | 0·2 |
| 29 | 58·87 | | 58·8 | | 27·56 | | 42·7 | | 10·72 | | 11·0 | |
| | | 0·10 | | 0·9 | | 0·10 | | 0·8 | | 0·07 | | 0·0 |
| Sept. 8 | 58·77 | | 59·7 | | 27·46 | | 43·5 | | 10·65 | | 11·0 | |
| | | 0·13 | | 0·7 | | 0·13 | | 0·6 | | 0·11 | | 0·1 |
| 18 | 58·64 | | 60·4 | | 27·33 | | 44·1 | | 10·54 | | 11·1 | |
| | | 0·14 | | 0·4 | | 0·14 | | 0·4 | | 0·12 | | 0·1 |
| 28 | 58·50 | | 60·8 | | 27·19 | | 44·5 | | 10·42 | | 11·2 | |
| | | 0·16 | | 0·2 | | 0·16 | | 0·1 | | 0·15 | | 0·3 |
| Oct. 8 | 58·34 | | 61·0 | | 27·03 | | 44·6 | | 10·27 | | 11·5 | |
| | | 0·16 | | 0·1 | | 0·16 | | 0·1 | | 0·15 | | 0·3 |
| 18 | 58·18 | | 60·9 | | 26·87 | | 44·5 | | 10·12 | | 11·8 | |
| | | 0·16 | | 0·3 | | 0·15 | | 0·3 | | 0·15 | | 0·3 |
| 28 | 58·02 | | 60·6 | | 26·72 | | 44·2 | | 9·97 | | 12·1 | |
| | | 0·14 | | 0·5 | | 0·14 | | 0·5 | | 0·14 | | 0·3 |
| Nov. 7 | 57·88 | | 60·1 | | 26·58 | | 43·7 | | 9·83 | | 12·4 | |
| | | 0·12 | | 0·8 | | 0·12 | | 0·7 | | 0·13 | | 0·3 |
| 17 | 57·76 | | 59·3 | | 26·46 | | 43·0 | | 9·70 | | 12·7 | |
| | | 0·09 | | 1·0 | | 0·10 | | 1·0 | | 0·09 | | 0·4 |
| 27 | 57·67 | | 58·3 | | 26·36 | | 42·0 | | 9·61 | | 13·1 | |
| | | 0·06 | | 1·2 | | 0·06 | | 1·1 | | 0·07 | | 0·3 |
| Dec. 7 | 57·61 | | 57·1 | | 26·30 | | 40·9 | | 9·54 | | 13·4 | |
| | | 0·02 | | 1·4 | | 0·01 | | 1·2 | | 0·02 | | 0·4 |
| 17 | 57·59 | | 55·7 | | 26·29 | | 39·7 | | 9·52 | | 13·8 | |
| | | 0·01 | | 1·5 | | 0·01 | | 1·4 | | 0·01 | | 0·3 |
| 27 | 57·60 | | 54·2 | | 26·30 | | 38·3 | | 9·53 | | 14·1 | |
| | | 0·07 | | 1·6 | | 0·05 | | 1·5 | | 0·04 | | 0·3 |
| 37 | 57·67 | | 52·6 | | 26·35 | | 36·8 | | 9·57 | | 14·4 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | α Pavonis. | | | | λ Ursæ Minoris. | | | |
|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *South.* | | R. A. | | Dec. *North.* | |
| | 20h | | 57° | | 20h | | 88° | |
| | m s | s | ′ ″ | ″ | m s | s | ′ ″ | ′ |
| Jan. 1 | 12 50·44 | | 14 51·2 | | 21 11·74 | | 49 34·8 | |
| | | 0·07 | | 2·2 | | 5·54 | | 2 |
| 11 | 50·51 | | 49·0 | | 6·20 | | 31·9 | |
| | | 0·14 | | 2·4 | | 3·52 | | 3 |
| 21 | 50·65 | | 46·6 | | 2·68 | | 28·9 | |
| | | 0·23 | | 2·7 | | 1·50 | | 3 |
| 31 | * 50·88 | | 43·9 | | * 1·18 | | 25·3 | |
| | | 0·27 | | 2·4 | | 0·83 | | 3 |
| Feb. 10 | 51·15 | | 41·5 | | 2·01 | | 22·2 | |
| | | 0·33 | | 2·4 | | 2·91 | | 3 |
| 20 | 51·48 | | 39·1 | | 4·92 | | 19·2 | |
| | | 0·38 | | 2·2 | | 4·82 | | 2 |
| Mar. 2 | 51·86 | | 36·9 | | 9·74 | | 16·4 | |
| | | 0·42 | | 2·2 | | 6·48 | | 2 |
| 12 | 52·28 | | 34·7 | | 16·22 | | 14·0 | |
| | | 0·45 | | 1·9 | | 7·87 | | 1 |
| 22 | 52·73 | | 32·8 | | 24·09 | | 12·1 | |
| | | 0·49 | | 1·7 | | 8·94 | | 1 |
| Apr. 1 | 53·22 | | 31·1 | | 33·03 | | 10·7 | |
| | | 0·51 | | 1·4 | | 9·57 | | 0 |
| 11 | 53·73 | | 29·7 | | 42·60 | | 9·8 | |
| | | 0·53 | | 1·2 | | 9·93 | | 0 |
| 21 | 54·26 | | 28·5 | | 21 52·53 | | 9·6 | |
| | | 0·53 | | 0·9 | | 9·83 | | 0 |
| May 1 | 54·79 | | 27·6 | | 22 2·36 | | 10·0 | |
| | | 0·54 | | 0·5 | | 9·42 | | 1 |
| 11 | 55·33 | | 27·1 | | 11·78 | | 11·0 | |
| | | 0·52 | | 0·2 | | 8·69 | | 1 |
| 21 | 55·85 | | 26·9 | | 20·47 | | 12·5 | |
| | | 0·50 | | 0·1 | | 7·62 | | 2 |
| 31 | 56·35 | | 27·0 | | 28·09 | | 14·6 | |
| | | 0·47 | | 0·5 | | 6·37 | | 2 |
| June 10 | 56·82 | | 27·5 | | 34·46 | | 17·1 | |
| | | 0·42 | | 0·8 | | 4·93 | | 2 |
| 20 | 57·24 | | 28·3 | | 39·39 | | 19·9 | |
| | | 0·38 | | 1·2 | | 3·35 | | 3 |
| 30 | 57·62 | | 29·5 | | 42·74 | | 23·0 | |
| | | 0·30 | | 1·4 | | 1·60 | | 3 |
| July 10 | 57·92 | | 30·9 | | 44·34 | | 26·3 | |
| | | 0·24 | | 1·6 | | 0·08 | | 3 |
| 20 | 58·16 | | 32·5 | | 44·26 | | 29·7 | |
| | | 0·16 | | 1·8 | | 1·80 | | 3 |
| 30 | 58·32 | | 34·3 | | 42·46 | | 33·2 | |
| | | 0·09 | | 1·9 | | 3·47 | | 3 |
| Aug. 9 | 58·41 | | 36·2 | | 38·99 | | 36·7 | |
| | | 0·00 | | 2·0 | | 5·10 | | 3 |
| 19 | 58·41 | | 38·2 | | 33·89 | | 40·0 | |
| | | 0·07 | | 1·9 | | 6·60 | | 3 |
| 29 | 58·34 | | 40·1 | | 27·29 | | 43·2 | |
| | | 0·15 | | 1·8 | | 8·00 | | 3 |
| Sept. 8 | 58·19 | | 41·9 | | 19·29 | | 46·2 | |
| | | 0·20 | | 1·6 | | 9·24 | | 2 |
| 18 | 57·99 | | 43·5 | | 22 10·05 | | 48·8 | |
| | | 0·26 | | 1·4 | | 10·29 | | 2 |
| 28 | 57·73 | | 44·9 | | 21 59·76 | | 51·1 | |
| | | 0·29 | | 1·0 | | 11·16 | | 1 |
| Oct. 8 | 57·44 | | 45·9 | | 48·60 | | 52·9 | |
| | | 0·30 | | 0·6 | | 11·74 | | 1 |
| 18 | 57·14 | | 46·5 | | 36·86 | | 54·3 | |
| | | 0·31 | | 0·2 | | 12·12 | | 1 |
| 28 | 56·83 | | 46·7 | | 24·74 | | 55·3 | |
| | | 0·30 | | 0·2 | | 12·24 | | 0 |
| Nov. 7 | 56·53 | | 46·5 | | 12·50 | | 55·6 | |
| | | 0·27 | | 0·6 | | 12·06 | | 0 |
| 17 | 56·26 | | 45·9 | | 21 0·44 | | 55·4 | |
| | | 0·22 | | 1·0 | | 11·52 | | 0 |
| 27 | 56·04 | | 44·9 | | 20 48·92 | | 54·7 | |
| | | 0·17 | | 1·4 | | 10·69 | | 1 |
| Dec. 7 | 55·87 | | 43·5 | | 38·23 | | 53·4 | |
| | | 0·10 | | 1·8 | | 9·60 | | 1 |
| 17 | 55·77 | | 41·7 | | 28·63 | | 51·6 | |
| | | 0·04 | | 2·0 | | 8·19 | | 2 |
| 27 | 55·73 | | 39·7 | | 20·44 | | 49·3 | |
| | | 0·04 | | 2·2 | | 6·44 | | 2 |
| 37 | 12 55·77 | | 14 37·5 | | 20 14·00 | | 49 46·7 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | α Cygni. | | | | 61¹ Cygni. | | | | ζ Cygni. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *North.* | | R. A. | | Dec. *North.* | |
| | h m 20 35 | | ° ′ 44 42 | | h m 20 59 | | ° ′ 37 57 | | h m 21 6 | | ° ′ 29 33 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| Jan. 1 | 54·75 | 0·05 | 28·2 | 2·8 | 39·93 | 0·04 | 42·8 | 2·4 | 3·84 | 0·03 | 72·0 | 2·2 |
| 11 | 54·70 | 0·01 | 25·4 | 2·9 | 39·89 | 0·01 | 40·4 | 2·5 | 3·81 | 0·00 | 69·8 | 2·3 |
| 21 | 54·71 | 0·06 | 22·5 | 3·2 | 39·90 | 0·04 | 37·9 | 2·5 | 3·81 | 0·04 | 67·5 | 2·3 |
| 31 | *54·77 | | 19·3 | | 39·94 | | 35·4 | | 3·85 | | 65·2 | |
| | | 0·11 | | 2·8 | * | 0·10 | | 2·8 | * | 0·09 | | 2·4 |
| Feb. 10 | 54·88 | 0·17 | 16·5 | 2·7 | 40·04 | 0·14 | 32·6 | 2·3 | 3·94 | 0·13 | 62·8 | 2·1 |
| 20 | 55·05 | 0·20 | 13·8 | 2·3 | 40·18 | 0·19 | 30·3 | 2·1 | 4·07 | 0·16 | 60·7 | 1·8 |
| Mar. 2 | 55·25 | 0·26 | 11·5 | 1·9 | 40·37 | 0·22 | 28·2 | 1·7 | 4·23 | 0·20 | 58·9 | 1·5 |
| 12 | 55·51 | | 9·6 | | 40·59 | | 26·5 | | 4·43 | | 57·4 | |
| | | 0·28 | | 1·4 | | 0·26 | | 1·3 | | 0·23 | | 1·1 |
| 22 | 55·79 | 0·33 | 8·2 | 0·9 | 40·85 | 0·30 | 25·2 | 0·7 | 4·66 | 0·26 | 56·3 | 0·6 |
| Apr. 1 | 56·12 | 0·35 | 7·3 | 0·3 | 41·15 | 0·32 | 24·5 | 0·3 | 4·92 | 0·29 | 55·7 | 0·1 |
| 11 | 56·47 | 0·37 | 7·0 | 0·2 | 41·47 | 0·34 | 24·2 | 0·3 | 5·21 | 0·31 | 55·6 | 0·4 |
| 21 | 56·84 | | 7·2 | | 41·81 | | 24·5 | | 5·52 | | 56·0 | |
| | | 0·37 | | 0·9 | | 0·36 | | 0·9 | | 0·33 | | 0·9 |
| May 1 | 57·21 | 0·38 | 8·1 | 1·4 | 42·17 | 0·37 | 25·4 | 1·4 | 5·85 | 0·33 | 56·9 | 1·3 |
| 11 | 57·59 | 0·37 | 9·5 | 1·9 | 42·54 | 0·36 | 26·8 | 1·9 | 6·18 | 0·34 | 58·2 | 1·8 |
| 21 | 57·96 | 0·35 | 11·4 | 2·4 | 42·90 | 0·35 | 28·7 | 2·2 | 6·52 | 0·32 | 60·0 | 2·1 |
| 31 | 58·31 | | 13·8 | | 43·25 | | 30·9 | | 6·84 | | 62·1 | |
| | | 0·33 | | 2·7 | | 0·34 | | 2·7 | | 0·31 | | 2·5 |
| June 10 | 58·63 | 0·29 | 16·5 | 3·0 | 43·59 | 0·30 | 33·6 | 2·9 | 7·15 | 0·29 | 64·6 | 2·7 |
| 20 | 58·92 | 0·24 | 19·5 | 3·2 | 43·89 | 0·27 | 36·5 | 3·1 | 7·44 | 0·26 | 67·3 | 2·8 |
| 30 | 59·16 | 0·20 | 22·7 | 3·4 | 44·16 | 0·23 | 39·6 | 3·3 | 7·70 | 0·22 | 70·1 | 2·9 |
| July 10 | 59·36 | | 26·1 | | 44·39 | | 42·9 | | 7·92 | | 73·0 | |
| | | 0·14 | | 3·4 | | 0·18 | | 3·3 | | 0·18 | | 3·0 |
| 20 | 59·50 | 0·09 | 29·5 | 3·3 | 44·57 | 0·13 | 46·2 | 3·3 | 8·10 | 0·13 | 76·0 | 3·0 |
| 30 | 59·59 | 0·02 | 32·8 | 3·2 | 44·70 | 0·08 | 49·5 | 3·2 | 8·23 | 0·09 | 79·0 | 2·8 |
| Aug. 9 | 59·61 | 0·02 | 36·0 | 3·1 | 44·78 | 0·03 | 52·7 | 3·1 | 8·32 | 0·04 | 81·8 | 2·6 |
| 19 | 59·59 | | 39·1 | | 44·81 | | 55·8 | | 8·36 | | 84·4 | |
| | | 0·08 | | 2·9 | | 0·02 | | 2·8 | | 0·01 | | 2·5 |
| 29 | 59·51 | 0·13 | 42·0 | 2·5 | 44·79 | 0·07 | 58·6 | 2·6 | 8·35 | 0·06 | 86·9 | 2·1 |
| Sept. 8 | 59·38 | 0·17 | 44·5 | 2·2 | 44·72 | 0·11 | 61·2 | 2·2 | 8·29 | 0·09 | 89·0 | 1·9 |
| 18 | 59·21 | 0·21 | 46·7 | 1·9 | 44·61 | 0·15 | 63·4 | 2·0 | 8·20 | 0·13 | 90·9 | 1·6 |
| 28 | 59·00 | | 48·6 | | 44·46 | | 65·4 | | 8·07 | | 92·5 | |
| | | 0·24 | | 1·4 | | 0·17 | | 1·5 | | 0·15 | | 1·2 |
| Oct. 8 | 58·76 | 0·25 | 50·0 | 0·9 | 44·29 | 0·20 | 66·9 | 1·1 | 7·92 | 0·17 | 93·7 | 0·9 |
| 18 | 58·51 | 0·25 | 50·9 | 0·5 | 44·09 | 0·20 | 68·0 | 0·7 | 7·75 | 0·18 | 94·6 | 0·4 |
| 28 | 58·26 | 0·26 | 51·4 | 0·1 | 43·89 | 0·20 | 68·7 | 0·2 | 7·57 | 0·18 | 95·0 | 0·1 |
| Nov. 7 | 58·00 | | 51·3 | | 43·69 | | 68·9 | | 7·39 | | 95·1 | |
| | | 0·24 | | 0·5 | | 0·20 | | 0·2 | | 0·18 | | 0·4 |
| 17 | 57·76 | 0·22 | 50·8 | 1·1 | 43·49 | 0·18 | 68·7 | 0·3 | 7·21 | 0·16 | 94·7 | 0·7 |
| 27 | 57·54 | 0·20 | 49·7 | 1·5 | 43·31 | 0·16 | 67·9 | 1·1 | 7·05 | 0·14 | 94·0 | 1·2 |
| Dec. 7 | 57·34 | 0·15 | 48·2 | 1·9 | 43·15 | 0·12 | 66·8 | 1·6 | 6·91 | 0·11 | 92·8 | 1·5 |
| 17 | 57·19 | | 46·3 | | 43·03 | | 65·2 | | 6·80 | | 91·3 | |
| | | 0·11 | | 2·3 | | 0·10 | | 1·9 | | 0·09 | | 1·7 |
| 27 | 57·08 | 0·07 | 44·0 | 2·6 | 42·93 | 0·06 | 63·3 | 2·2 | 6·71 | 0·04 | 89·6 | 2·1 |
| 37 | 57·01 | | 41·4 | | 42·87 | | 61·1 | | 6·67 | | 87·5 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | α Cephei. | | | | β Aquarii. | | | | β Cephei. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *South.* | | R. A. | | Dec. *North.* | |
| | h m 21 14 | | ° ′ 61 53 | | h m 21 23 | | ° ′ 6 16 | | h m 21 26 | | ° ′ 69 50 | |
| | s | | ″ | | s | | ″ | | s | | ″ | |
| Jan. 1 | 40·71 | s | 83·0 | ″ | 3·82 | s | 39·4 | ″ | 29·25 | s | 84·6 | ″ |
| | | 0·20 | | 2·6 | | 0·00 | | 0·5 | | 0·35 | | 2·5 |
| 11 | 40·51 | | 80·4 | | 3·82 | | 39·9 | | 28·90 | | 82·1 | |
| | | 0·14 | | 3·0 | | 0·03 | | 0·5 | | 0·25 | | 2·3 |
| 21 | 40·37 | | 77·4 | | 3·85 | | 40·4 | | 28·65 | | 79·2 | |
| | | 0·05 | | 3·1 | | 0·05 | | 0·4 | | 0·15 | | 3·1 |
| 31 | 40·32 | | 74·3 | | 3·90 | | 40·8 | | 28·50 | | 76·1 | |
| | * | 0·03 | | 3·5 | | 0·09 | | 0·2 | | 0·04 | | 3·2 |
| Feb. 10 | 40·35 | | 70·8 | | 3·99 | | 41·0 | | 28·46 | | 72·9 | |
| | | 0·11 | | 3·1 | * | 0·13 | | 0·1 | * | 0·09 | | 3·3 |
| 20 | 40·46 | | 67·7 | | 4·12 | | 41·1 | | 28·55 | | 69·4 | |
| | | 0·19 | | 2·9 | | 0·15 | | 0·1 | | 0·20 | | 3·0 |
| Mar. 2 | 40·65 | | 64·8 | | 4·27 | | 41·0 | | 28·75 | | 66·4 | |
| | | 0·28 | | 2·5 | | 0·18 | | 0·3 | | 0·31 | | 2·8 |
| 12 | 40·93 | | 62·3 | | 4·45 | | 40·7 | | 29·06 | | 63·6 | |
| | | 0·34 | | 2·2 | | 0·21 | | 0·6 | | 0·42 | | 2·4 |
| 22 | 41·27 | | 60·1 | | 4·66 | | 40·1 | | 29·48 | | 61·2 | |
| | | 0·40 | | 1·6 | | 0·24 | | 0·8 | | 0·50 | | 1·8 |
| Apr. 1 | 41·67 | | 58·5 | | 4·90 | | 39·3 | | 29·98 | | 59·4 | |
| | | 0·45 | | 1·0 | | 0·26 | | 1·0 | | 0·58 | | 1·4 |
| 11 | 42·12 | | 57·5 | | 5·16 | | 38·3 | | 30·56 | | 58·0 | |
| | | 0·49 | | 0·5 | | 0·29 | | 1·3 | | 0·63 | | 0·7 |
| 21 | 42·61 | | 57·0 | | 5·45 | | 37·0 | | 31·19 | | 57·3 | |
| | | 0·52 | | 0·2 | | 0·30 | | 1·5 | | 0·66 | | 0·1 |
| May 1 | 43·13 | | 57·2 | | 5·75 | | 35·5 | | 31·85 | | 57·2 | |
| | | 0·52 | | 0·8 | | 0·31 | | 1·6 | | 0·68 | | 0·5 |
| 11 | 43·65 | | 58·0 | | 6·06 | | 33·9 | | 32·53 | | 57·7 | |
| | | 0·52 | | 1·4 | | 0·32 | | 1·7 | | 0·68 | | 1·1 |
| 21 | 44·17 | | 59·4 | | 6·38 | | 32·2 | | 33·21 | | 58·8 | |
| | | 0·50 | | 1·9 | | 0·32 | | 1·8 | | 0·65 | | 1·7 |
| 31 | 44·67 | | 61·3 | | 6·70 | | 30·4 | | 33·86 | | 60·5 | |
| | | 0·46 | | 2·4 | | 0·31 | | 1·8 | | 0·60 | | 2·2 |
| June 10 | 45·13 | | 63·7 | | 7·01 | | 28·6 | | 34·46 | | 62·7 | |
| | | 0·42 | | 2·8 | | 0·30 | | 1·8 | | 0·55 | | 2·6 |
| 20 | 45·55 | | 66·5 | | 7·31 | | 26·8 | | 35·01 | | 65·3 | |
| | | 0·36 | | 3·1 | | 0·27 | | 1·7 | | 0·47 | | 3·0 |
| 30 | 45·91 | | 69·6 | | 7·58 | | 25·1 | | 35·48 | | 68·3 | |
| | | 0·30 | | 3·5 | | 0·24 | | 1·5 | | 0·39 | | 3·3 |
| July 10 | 46·21 | | 73·1 | | 7·82 | | 23·6 | | 35·87 | | 71·6 | |
| | | 0·22 | | 3·5 | | 0·21 | | 1·5 | | 0·29 | | 3·6 |
| 20 | 46·43 | | 76·6 | | 8·03 | | 22·1 | | 36·16 | | 75·2 | |
| | | 0·14 | | 3·7 | | 0·17 | | 1·2 | | 0·19 | | 3·7 |
| 30 | 46·57 | | 80·3 | | 8·20 | | 20·9 | | 36·35 | | 78·9 | |
| | | 0·07 | | 3·7 | | 0·12 | | 1·0 | | 0·08 | | 3·7 |
| Aug. 9 | 46·64 | | 84·0 | | 8·32 | | 19·9 | | 36·43 | | 82·6 | |
| | | 0·02 | | 3·6 | | 0·08 | | 0·9 | | 0·03 | | 3·8 |
| 19 | 46·62 | | 87·6 | | 8·40 | | 19·0 | | 36·40 | | 86·4 | |
| | | 0·09 | | 3·5 | | 0·04 | | 0·6 | | 0·12 | | 3·6 |
| 29 | 46·53 | | 91·1 | | 8·44 | | 18·4 | | 36·28 | | 90·0 | |
| | | 0·17 | | 3·3 | | 0·01 | | 0·4 | | 0·23 | | 3·4 |
| Sept. 8 | 46·36 | | 94·4 | | 8·43 | | 18·0 | | 36·05 | | 93·4 | |
| | | 0·23 | | 2·9 | | 0·05 | | 0·2 | | 0·31 | | 3·3 |
| 18 | 46·13 | | 97·3 | | 8·38 | | 17·8 | | 35·74 | | 96·7 | |
| | | 0·30 | | 2·7 | | 0·07 | | 0·1 | | 0·40 | | 2·9 |
| 28 | 45·83 | | 100·0 | | 8·31 | | 17·7 | | 35·34 | | 99·6 | |
| | | 0·34 | | 2·2 | | 0·11 | | 0·1 | | 0·47 | | 2·5 |
| Oct. 8 | 45·49 | | 102·2 | | 8·20 | | 17·8 | | 34·87 | | 102·1 | |
| | | 0·37 | | 1·8 | | 0·12 | | 0·2 | | 0·52 | | 2·1 |
| 18 | 45·12 | | 104·0 | | 8·08 | | 18·0 | | 34·35 | | 104·2 | |
| | | 0·41 | | 1·3 | | 0·13 | | 0·4 | | 0·56 | | 1·6 |
| 28 | 44·71 | | 105·3 | | 7·95 | | 18·4 | | 33·79 | | 105·8 | |
| | | 0·41 | | 0·7 | | 0·14 | | 0·4 | | 0·60 | | 1·1 |
| Nov. 7 | 44·30 | | 106·0 | | 7·81 | | 18·8 | | 33·19 | | 106·9 | |
| | | 0·41 | | 0·2 | | 0·13 | | 0·4 | | 0·60 | | 0·5 |
| 17 | 43·89 | | 106·2 | | 7·68 | | 19·2 | | 32·59 | | 107·4 | |
| | | 0·41 | | 0·4 | | 0·11 | | 0·6 | | 0·59 | | 0·1 |
| 27 | 43·48 | | 105·8 | | 7·57 | | 19·8 | | 32·00 | | 107·3 | |
| | | 0·38 | | 1·0 | | 0·10 | | 0·5 | | 0·57 | | 0·7 |
| Dec. 7 | 43·10 | | 104·8 | | 7·47 | | 20·3 | | 31·43 | | 106·6 | |
| | | 0·34 | | 1·5 | | 0·07 | | 0·6 | | 0·52 | | 1·2 |
| 17 | 42·76 | | 103·3 | | 7·40 | | 20·9 | | 30·91 | | 105·4 | |
| | | 0·29 | | 2·0 | | 0·05 | | 0·6 | | 0·46 | | 1·8 |
| 27 | 42·47 | | 101·3 | | 7·35 | | 21·5 | | 30·45 | | 103·6 | |
| | | 0·24 | | 2·4 | | 0·02 | | 0·5 | | 0·40 | | 2·3 |
| 37 | 42·23 | | 98·9 | | 7·33 | | 22·0 | | 30·05 | | 101·3 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | ε Pegasi. | | | | α Aquarii. | | | | α Gruis. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *South.* | | R. A. | | Dec. *South.* | |
| | h m | | ° ′ | | h m | | ° ′ | | h m | | ° ′ | |
| | 21 36 | | 9 8 | | 21 57 | | 1 5 | | 21 58 | | 47 43 | |
| | s | | ″ | | s | | ″ | | s | | ″ | |
| Jan. 1 | 15·77 | | 21·5 | | 30·03 | | 61·2 | | 2·44 | | 90·1 | |
| | | s 0·03 | | ″ 1·2 | | s 0·04 | | ″ 0·7 | | s 0·08 | | ″ 1·5 |
| 11 | 15·74 | | 20·3 | | 29·99 | | 61·9 | | 2·36 | | 88·6 | |
| | | 0·01 | | 1·2 | | 0·01 | | 0·7 | | 0·02 | | 1·8 |
| 21 | 15·75 | | 19·1 | | 29·98 | | 62·6 | | 2·34 | | 86·8 | |
| | | 0·03 | | 1·3 | | 0·03 | | 0·6 | | 0·01 | | 2·1 |
| 31 | 15·78 | | 17·8 | | 30·01 | | 63·2 | | 2·35 | | 84·7 | |
| | | 0·06 | | 1·1 | | 0·04 | | 0·4 | | 0·06 | | 2·2 |
| Feb. 10 | 15·84 | | 16·7 | | 30·05 | | 63·6 | | 2·41 | | 82·5 | |
| | | 0·11 | | 1·1 | | 0·09 | | 0·5 | | 0·12 | | 2·7 |
| 20 | *15·95 | | 15·6 | | *30·14 | | 64·1 | | *2·53 | | 79·8 | |
| | | 0·13 | | 0·8 | | 0·12 | | 0·1 | | 0·16 | | 2·5 |
| Mar. 2 | 16·08 | | 14·8 | | 30·26 | | 64·2 | | 2·69 | | 77·3 | |
| | | 0·17 | | 0·5 | | 0·14 | | 0·1 | | 0·20 | | 2·7 |
| 12 | 16·25 | | 14·3 | | 30·40 | | 64·1 | | 2·89 | | 74·6 | |
| | | 0·19 | | 0·2 | | 0·18 | | 0·3 | | 0·25 | | 2·6 |
| 22 | 16·44 | | 14·1 | | 30·58 | | 63·8 | | 3·14 | | 72·0 | |
| | | 0·23 | | 0·2 | | 0·21 | | 0·7 | | 0·29 | | 2·6 |
| Apr. 1 | 16·67 | | 14·3 | | 30·79 | | 63·1 | | 3·43 | | 69·4 | |
| | | 0·24 | | 0·5 | | 0·24 | | 0·9 | | 0·33 | | 2·5 |
| 11 | 16·91 | | 14·8 | | 31·03 | | 62·2 | | 3·76 | | 66·9 | |
| | | 0·28 | | 0·8 | | 0·26 | | 1·1 | | 0·36 | | 2·4 |
| 21 | 17·19 | | 15·6 | | 31·29 | | 61·1 | | 4·12 | | 64·5 | |
| | | 0·30 | | 1·2 | | 0·29 | | 1·5 | | 0·39 | | 2·1 |
| May 1 | 17·49 | | 16·8 | | 31·58 | | 59·6 | | 4·51 | | 62·4 | |
| | | 0·31 | | 1·5 | | 0·30 | | 1·6 | | 0·42 | | 2·0 |
| 11 | 17·80 | | 18·3 | | 31·88 | | 58·0 | | 4·93 | | 60·4 | |
| | | 0·32 | | 1·7 | | 0·32 | | 1·8 | | 0·44 | | 1·6 |
| 21 | 18·12 | | 20·0 | | 32·20 | | 56·2 | | 5·37 | | 58·8 | |
| | | 0·31 | | 2·0 | | 0·32 | | 1·9 | | 0·43 | | 1·4 |
| 31 | 18·43 | | 22·0 | | 32·52 | | 54·3 | | 5·80 | | 57·4 | |
| | | 0·31 | | 2·1 | | 0·32 | | 2·0 | | 0·44 | | 1·1 |
| June 10 | 18·74 | | 24·1 | | 32·84 | | 52·3 | | 6·24 | | 56·3 | |
| | | 0·30 | | 2·2 | | 0·30 | | 2·0 | | 0·43 | | 0·6 |
| 20 | 19·04 | | 26·3 | | 33·14 | | 50·3 | | 6·67 | | 55·7 | |
| | | 0·27 | | 2·3 | | 0·29 | | 2·0 | | 0·40 | | 0·3 |
| 30 | 19·31 | | 28·6 | | 33·43 | | 48·3 | | 7·07 | | 55·4 | |
| | | 0·25 | | 2·2 | | 0·27 | | 1·8 | | 0·36 | | 0·1 |
| July 10 | 19·56 | | 30·8 | | 33·70 | | 46·5 | | 7·43 | | 55·5 | |
| | | 0·21 | | 2·2 | | 0·23 | | 1·7 | | 0·33 | | 0·6 |
| 20 | 19·77 | | 33·0 | | 33·93 | | 44·8 | | 7·76 | | 56·1 | |
| | | 0·17 | | 2·1 | | 0·19 | | 1·7 | | 0·26 | | 0·8 |
| 30 | 19·94 | | 35·1 | | 34·12 | | 43·1 | | 8·02 | | 56·9 | |
| | | 0·12 | | 1·9 | | 0·15 | | 1·4 | | 0·22 | | 1·2 |
| Aug. 9 | 20·06 | | 37·0 | | 34·27 | | 41·7 | | 8·24 | | 58·1 | |
| | | 0·09 | | 1·7 | | 0·11 | | 1·2 | | 0·15 | | 1·4 |
| 19 | 20·15 | | 38·7 | | 34·38 | | 40·5 | | 8·39 | | 59·5 | |
| | | 0·04 | | 1·5 | | 0·07 | | 0·9 | | 0·09 | | 1·7 |
| 29 | 20·19 | | 40·2 | | 34·45 | | 39·6 | | 8·48 | | 61·2 | |
| | | 0·01 | | 1·3 | | 0·02 | | 0·8 | | 0·02 | | 1·8 |
| Sept. 8 | 20·18 | | 41·5 | | 34·47 | | 38·8 | | 8·50 | | 63·0 | |
| | | 0·04 | | 1·1 | | 0·02 | | 0·5 | | 0·04 | | 1·8 |
| 18 | 20·14 | | 42·6 | | 34·45 | | 38·3 | | 8·46 | | 64·8 | |
| | | 0·07 | | 0·8 | | 0·05 | | 0·3 | | 0·09 | | 1·9 |
| 28 | 20·07 | | 43·4 | | 34·40 | | 38·0 | | 8·37 | | 66·7 | |
| | | 0·10 | | 0·6 | | 0·08 | | 0·2 | | 0·14 | | 1·7 |
| Oct. 8 | 19·97 | | 44·0 | | 34·32 | | 37·8 | | 8·23 | | 68·4 | |
| | | 0·12 | | 0·3 | | 0·10 | | 0·0 | | 0·18 | | 1·5 |
| 18 | 19·85 | | 44·3 | | 34·22 | | 37·8 | | 8·05 | | 69·9 | |
| | | 0·13 | | 0·1 | | 0·12 | | 0·2 | | 0·20 | | 1·3 |
| 28 | 19·72 | | 44·4 | | 34·10 | | 38·0 | | 7·85 | | 71·2 | |
| | | 0·14 | | 0·2 | | 0·12 | | 0·4 | | 0·22 | | 1·0 |
| Nov. 7 | 19·58 | | 44·2 | | 33·98 | | 38·4 | | 7·63 | | 72·2 | |
| | | 0·13 | | 0·4 | | 0·12 | | 0·4 | | 0·22 | | 0·6 |
| 17 | 19·45 | | 43·8 | | 33·86 | | 38·8 | | 7·41 | | 72·8 | |
| | | 0·12 | | 0·5 | | 0·12 | | 0·5 | | 0·22 | | 0·2 |
| 27 | 19·33 | | 43·3 | | 33·74 | | 39·3 | | 7·19 | | 73·0 | |
| | | 0·11 | | 0·8 | | 0·11 | | 0·7 | | 0·20 | | 0·2 |
| Dec. 7 | 19·22 | | 42·5 | | 33·63 | | 40·0 | | 6·99 | | 72·8 | |
| | | 0·09 | | 0·9 | | 0·09 | | 0·6 | | 0·16 | | 0·6 |
| 17 | 19·13 | | 41·6 | | 33·54 | | 40·6 | | 6·83 | | 72·2 | |
| | | 0·06 | | 1·1 | | 0·07 | | 0·7 | | 0·14 | | 1·0 |
| 27 | 19·07 | | 40·5 | | 33·47 | | 41·3 | | 6·69 | | 71·2 | |
| | | 0·05 | | 1·2 | | 0·04 | | 0·8 | | 0·09 | | 1·3 |
| 37 | 19·02 | | 39·3 | | 33·43 | | 42·1 | | 6·60 | | 69·9 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STA
### FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | ζ Pegasi. | | | | α Piscis Australis. (*Fomalhaut*) | | | | α Pega (*Mark* |
|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *South.* | | R. A. |
| | h m 22 33 | | ° ′ 9 59 | | h m 22 48 | | ° ′ 30 28 | | h m 22 56 |
| | s | s | ″ | ″ | s | s | ″ | ″ | s |
| Jan. 1 | 25·26 | 0·07 | 33·9 | 1·1 | 44·01 | 0·09 | 36·8 | 0·5 | 44·08 |
| 11 | 25·19 | 0·04 | 32·8 | 1·1 | 43·92 | 0·05 | 36·3 | 0·7 | 43·99 |
| 21 | 25·15 | 0·02 | 31·7 | 1·1 | 43·87 | 0·03 | 35·6 | 1·1 | 43·93 |
| 31 | 25·13 | | 30·6 | | 43·84 | | 34·5 | | 43·89 |
| | | 0·01 | | 1·0 | | 0·00 | | 1·2 | |
| Feb. 10 | 25·14 | 0·04 | 29·6 | 0·9 | 43·84 | 0·03 | 33·3 | 1·5 | 43·87 |
| 20 | 25·18 | 0·08 | 28·7 | 0·9 | 43·87 | 0·07 | 31·8 | 1·7 | 43·89 |
| Mar. 2 | *25·26 | 0·10 | 27·8 | 0·5 | 43·94 | 0·11 | 30·1 | 2·1 | 43·93 |
| 12 | 25·36 | | 27·3 | | *44·05 | | 28·0 | | *44·02 |
| | | 0·15 | | 0·2 | | 0·14 | | 2·1 | |
| 22 | 25·51 | 0·18 | 27·1 | 0·0 | 44·19 | 0·19 | 25·9 | 2·2 | 44·14 |
| Apr. 1 | 25·69 | 0·21 | 27·1 | 0·4 | 44·38 | 0·22 | 23·7 | 2·3 | 44·30 |
| 11 | 25·90 | 0·24 | 27·5 | 0·7 | 44·60 | 0·25 | 21·4 | 2·3 | 44·49 |
| 21 | 26·14 | | 28·2 | | 44·85 | | 19·1 | | 44·72 |
| | | 0·27 | | 1·1 | | 0·29 | | 2·4 | |
| May 1 | 26·41 | 0·30 | 29·3 | 1·4 | 45·14 | 0·32 | 16·7 | 2·2 | 44·98 |
| 11 | 26·71 | 0·31 | 30·7 | 1·6 | 45·46 | 0·34 | 14·5 | 2·2 | 45·27 |
| 21 | 27·02 | 0·32 | 32·3 | 1·9 | 45·80 | 0·35 | 12·3 | 2·1 | 45·58 |
| 31 | 27·34 | | 34·2 | | 46·15 | | 10·2 | | 45·90 |
| | | 0·33 | | 2·0 | | 0·35 | | 1·8 | |
| June 10 | 27·67 | 0·31 | 36·2 | 2·2 | 46·50 | 0·37 | 8·4 | 1·6 | 46·23 |
| 20 | 27·98 | 0·31 | 38·4 | 2·3 | 46·87 | 0·35 | 6·8 | 1·3 | 46·56 |
| 30 | 28·29 | 0·28 | 40·7 | 2·3 | 47·22 | 0·33 | 5·5 | 1·0 | 46·87 |
| July 10 | 28·57 | | 43·0 | | 47·55 | | 4·5 | | 47·17 |
| | | 0·25 | | 2·2 | | 0·31 | | 0·6 | |
| 20 | 28·82 | 0·22 | 45·2 | 2·2 | 47·86 | 0·26 | 3·9 | 0·3 | 47·44 |
| 30 | 29·04 | 0·18 | 47·4 | 2·0 | 48·12 | 0·23 | 3·6 | 0·0 | 47·67 |
| Aug. 9 | 29·22 | 0·14 | 49·4 | 1·9 | 48·35 | 0·18 | 3·6 | 0·4 | 47·88 |
| 19 | 29·36 | | 51·3 | | 48·53 | | 4·0 | | 48·04 |
| | | 0·10 | | 1·6 | | 0·13 | | 0·6 | |
| 29 | 29·46 | 0·05 | 52·9 | 1·5 | 48·66 | 0·08 | 4·6 | 1·0 | 48·16 |
| Sept. 8 | 29·51 | 0·02 | 54·4 | 1·2 | 48·74 | 0·04 | 5·6 | 1·1 | 48·24 |
| 18 | 29·53 | 0·03 | 55·6 | 1·0 | 48·78 | 0·01 | 6·7 | 1·2 | 48·27 |
| 28 | 29·50 | | 56·6 | | 48·77 | | 7·9 | | 48·27 |
| | | 0·05 | | 0·7 | | 0·06 | | 1·4 | |
| Oct. 8 | 29·45 | 0·08 | 57·3 | 0·5 | 48·71 | 0·08 | 9·3 | 1·3 | 48·24 |
| 18 | 29·37 | 0·10 | 57·8 | 0·3 | 48·63 | 0·11 | 10·6 | 1·3 | 48·18 |
| 28 | 29·27 | 0·11 | 58·1 | 0·0 | 48·52 | 0·13 | 11·9 | 1·1 | 48·09 |
| Nov. 7 | 29·16 | | 58·1 | | 48·39 | | 13·0 | | 47·99 |
| | | 0·11 | | 0·2 | | 0·15 | | 1·0 | |
| 17 | 29·05 | 0·12 | 57·9 | 0·4 | 48·24 | 0·15 | 14·0 | 0·8 | 47·88 |
| 27 | 28·93 | 0·12 | 57·5 | 0·6 | 48·09 | 0·13 | 14·8 | 0·6 | 47·77 |
| Dec. 7 | 28·81 | 0·10 | 56·9 | 0·7 | 47·96 | 0·13 | 15·4 | 0·2 | 47·65 |
| 17 | 28·71 | | 56·2 | | 47·83 | | 15·6 | | 47·54 |
| | | 0·09 | | 0·9 | | 0·12 | | 0·1 | |
| 27 | 28·62 | 0·08 | 55·3 | 1·0 | 47·71 | 0·09 | 15·5 | 0·3 | 47·44 |
| | 28·54 | | 54·3 | | 47·62 | | 15·2 | | 47·35 |

## PPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| | ι Piscium. | | | | γ Cephei. | | | |
|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *North.* | |
| | 23h | | 4° | | 23h | | 76° | |
| | m s | s | ′ ″ | ″ | m s | s | ′ ″ | ″ |
| | 31 39·82 | | 45 14·9 | | 32 43·97 | | 44 19·8 | |
| | 39·73 | 0·09 | 14·2 | 0·7 | 43·15 | 0·82 | 18·9 | 0·9 |
| | 39·65 | 0·08 | 13·4 | 0·8 | 42·39 | 0·76 | 17·5 | 1·4 |
| | 39·59 | 0·06 | 12·7 | 0·7 | 41·72 | 0·67 | 15·5 | 2·0 |
| | | 0·04 | | 0·7 | | 0·54 | | 2·4 |
| | 39·55 | | 12·0 | | 41·18 | | 13·1 | |
| | 39·54 | 0·01 | 11·5 | 0·5 | 40·77 | 0·41 | 10·3 | 2·8 |
| | 39·56 | 0·02 | 11·1 | 0·4 | 40·52 | 0·25 | 7·4 | 2·9 |
| | 39·60 | 0·04 | 11·0 | 0·1 | 40·45 | 0·07 | 4·3 | 3·1 |
| * | | 0·09 | | 0·1 | * | 0·13 | | 3·3 |
| | 39·69 | | 10·9 | | 40·58 | | 44 1·0 | |
| | 39·81 | 0·12 | 11·2 | 0·3 | 40·87 | 0·29 | 43 58·2 | 2·8 |
| | 39·97 | 0·16 | 11·8 | 0·6 | 41·35 | 0·48 | 55·7 | 2·5 |
| | 40·17 | 0·20 | 12·7 | 0·9 | 41·97 | 0·64 | 53·5 | 2·2 |
| | | 0·23 | | 1·2 | | 0·75 | | 1·7 |
| | 40·40 | | 13·9 | | 42·72 | | 51·8 | |
| | 40·67 | 0·27 | 15·3 | 1·4 | 43·58 | 0·86 | 50·6 | 1·2 |
| | 40·96 | 0·29 | 16·9 | 1·6 | 44·53 | 0·95 | 50·0 | 0·6 |
| | 41·27 | 0·31 | 18·8 | 1·9 | 45·52 | 0·99 | 50·0 | 0·0 |
| | | 0·32 | | 2·0 | | 1·01 | | 0·5 |
| | 41·59 | | 20·8 | | 46·53 | | 50·5 | |
| | 41·92 | 0·33 | 22·9 | 2·1 | 47·54 | 1·01 | 51·7 | 1·2 |
| | 42·24 | 0·32 | 25·0 | 2·1 | 48·52 | 0·98 | 53·3 | 1·6 |
| | 42·54 | 0·30 | 27·2 | 2·2 | 49·43 | 0·91 | 55·4 | 2·1 |
| | | 0·29 | | 2·0 | | 0·84 | | 2·6 |
| | 42·83 | | 29·2 | | 50·27 | | 43 58·0 | |
| | 43·09 | 0·26 | 31·2 | 2·0 | 51·00 | 0·73 | 44 1·0 | 3·0 |
| | 43·32 | 0·23 | 33·0 | 1·8 | 51·62 | 0·62 | 4·3 | 3·3 |
| | 43·52 | 0·20 | 34·6 | 1·6 | 52·11 | 0·49 | 7·8 | 3·5 |
| | | 0·15 | | 1·4 | | 0·36 | | 3·7 |
| | 43·67 | | 36·0 | | 52·47 | | 11·5 | |
| | 43·78 | 0·11 | 37·2 | 1·2 | 52·69 | 0·22 | 15·3 | 3·8 |
| | 43·86 | 0·08 | 38·1 | 0·9 | 52·77 | 0·08 | 19·2 | 3·9 |
| | 43·90 | 0·04 | 38·8 | 0·7 | 52·70 | 0·07 | 23·0 | 3·8 |
| | | 0·00 | | 0·5 | | 0·20 | | 3·7 |
| | 43·90 | | 39·3 | | 52·50 | | 26·7 | |
| | 43·87 | 0·03 | 39·5 | 0·2 | 52·17 | 0·33 | 30·1 | 3·4 |
| | 43·82 | 0·05 | 39·6 | 0·1 | 51·72 | 0·45 | 33·2 | 3·1 |
| | 43·75 | 0·07 | 39·5 | 0·1 | 51·15 | 0·57 | 36·0 | 2·8 |
| | | 0·09 | | 0·3 | | 0·67 | | 2·4 |
| | 43·66 | | 39·2 | | 50·48 | | 38·4 | |
| | 43·57 | 0·09 | 38·8 | 0·4 | 49·74 | 0·74 | 40·2 | 1·8 |
| | 43·46 | 0·11 | 38·2 | 0·6 | 48·93 | 0·81 | 41·5 | 1·3 |
| | 43·36 | 0·10 | 37·6 | 0·6 | 48·09 | 0·84 | 42·2 | 0·7 |
| | | 0·10 | | 0·7 | | 0·85 | | 0·0 |
| | 43·26 | | 36·9 | | 47·24 | | 42·2 | |
| | 31 43·17 | 0·09 | 45 36·2 | 0·7 | 32 46·40 | 0·84 | 44 41·6 | 0·6 |

## TABLE,

Showing the *Correction* to be applied to the *preceding* Apparent Places of F
Polar Stars, for the terms of Nutation involving 2 ☾.

| *Arg.* | | α Urs. Min. | | 51 Cephei. | | σ Octantis. | | δ Urs. Min. | | λ Urs. Min. | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ☾ | | R. A. | Dec. | R. A. | Dec. | R. A. | Dec. | R. A. | Dec. | R. A. | Dec. |
| ° | ° | s | ″ | s | ″ | s | ″ | s | ″ | s | ″ |
| 0 | 180 | — ·211 | + ·02 | + ·011 | + ·09 | — ·114 | — ·09 | — ·011 | — ·09 | — ·168 | — ·07 |
| 1 | 181 | ·213 | ·02 | ·007 | ·09 | ·129 | ·09 | ·008 | ·09 | ·161 | ·07 |
| 2 | 182 | ·215 | ·02 | + ·002 | ·09 | ·144 | ·09 | ·006 | ·09 | ·154 | ·08 |
| 3 | 183 | ·217 | ·02 | — ·002 | ·09 | ·157 | ·09 | ·003 | ·09 | ·147 | ·08 |
| 4 | 184 | ·218 | ·01 | ·007 | ·09 | ·172 | ·08 | — ·000 | ·09 | ·139 | ·08 |
| 5 | 185 | ·219 | ·01 | ·011 | ·09 | ·186 | ·08 | + ·003 | ·09 | ·131 | ·08 |
| 6 | 186 | ·220 | ·01 | ·016 | ·09 | ·200 | ·08 | ·005 | ·09 | ·123 | ·08 |
| 7 | 187 | ·221 | ·00 | ·020 | ·09 | ·214 | ·08 | ·008 | ·09 | ·116 | ·08 |
| 8 | 188 | ·221 | ·00 | ·025 | ·09 | ·227 | ·08 | ·011 | ·09 | ·107 | ·08 |
| 9 | 189 | ·221 | ·00 | ·030 | ·09 | ·239 | ·08 | ·014 | ·09 | ·100 | ·09 |
| 10 | 190 | ·220 | + ·00 | ·034 | ·09 | ·252 | ·08 | ·017 | ·09 | ·091 | ·08 |
| 11 | 191 | ·220 | — ·01 | ·038 | ·09 | ·265 | ·07 | ·019 | ·09 | ·083 | ·09 |
| 12 | 192 | ·219 | ·01 | ·042 | ·09 | ·277 | ·07 | ·022 | ·09 | ·074 | ·09 |
| 13 | 193 | ·218 | ·01 | ·046 | ·08 | ·288 | ·07 | ·024 | ·08 | ·065 | ·09 |
| 14 | 194 | ·216 | ·02 | ·050 | ·08 | ·300 | ·07 | ·027 | ·08 | ·056 | ·09 |
| 15 | 195 | ·215 | ·02 | ·055 | ·08 | ·311 | ·07 | ·029 | ·08 | ·047 | ·09 |
| 16 | 196 | ·213 | ·02 | ·059 | ·08 | ·322 | ·06 | ·032 | ·08 | ·039 | ·09 |
| 17 | 197 | ·211 | ·02 | ·063 | ·08 | ·332 | ·06 | ·035 | ·08 | ·030 | ·09 |
| 18 | 198 | ·209 | ·03 | ·066 | ·08 | ·341 | ·06 | ·037 | ·08 | ·021 | ·09 |
| 19 | 199 | ·206 | ·03 | ·070 | ·08 | ·351 | ·06 | ·039 | ·08 | ·012 | ·09 |
| 20 | 200 | ·204 | ·03 | ·074 | ·07 | ·360 | ·05 | ·042 | ·07 | — ·004 | ·09 |
| 21 | 201 | ·200 | ·03 | ·078 | ·07 | ·369 | ·05 | ·044 | ·07 | + ·005 | ·09 |
| 22 | 202 | ·197 | ·04 | ·081 | ·07 | ·377 | ·05 | ·046 | ·07 | ·014 | ·09 |
| 23 | 203 | ·194 | ·04 | ·084 | ·07 | ·384 | ·05 | ·048 | ·07 | ·023 | ·09 |
| 24 | 204 | ·189 | ·04 | ·088 | ·07 | ·391 | ·04 | ·051 | ·07 | ·033 | ·08 |
| 25 | 205 | ·186 | ·05 | ·091 | ·06 | ·398 | ·04 | ·053 | ·06 | ·042 | ·08 |
| 26 | 206 | ·181 | ·05 | ·094 | ·06 | ·404 | ·04 | ·055 | ·06 | ·051 | ·08 |
| 27 | 207 | ·177 | ·05 | ·097 | ·06 | ·410 | ·04 | ·057 | ·06 | ·059 | ·08 |
| 28 | 208 | ·172 | ·05 | ·100 | ·06 | ·416 | ·03 | ·059 | ·06 | ·068 | ·08 |
| 29 | 209 | ·167 | ·05 | ·103 | ·05 | ·420 | ·03 | ·061 | ·06 | ·076 | ·08 |
| 30 | 210 | ·161 | ·06 | ·106 | ·05 | ·424 | ·03 | ·063 | ·05 | ·085 | ·08 |
| 31 | 211 | ·156 | ·06 | ·108 | ·05 | ·428 | ·02 | ·064 | ·05 | ·093 | ·08 |
| 32 | 212 | ·151 | ·06 | ·110 | ·05 | ·431 | ·02 | ·065 | ·05 | ·101 | ·08 |
| 33 | 213 | ·145 | ·06 | ·113 | ·04 | ·433 | ·02 | ·067 | ·04 | ·110 | ·07 |
| 34 | 214 | ·139 | ·06 | ·115 | ·04 | ·436 | ·01 | ·068 | ·04 | ·118 | ·07 |
| 35 | 215 | ·133 | ·07 | ·117 | ·04 | ·437 | ·01 | ·069 | ·04 | ·126 | ·07 |
| 36 | 216 | ·127 | ·07 | ·119 | ·04 | ·438 | ·01 | ·071 | ·04 | ·133 | ·07 |
| 37 | 217 | ·120 | ·07 | ·120 | ·03 | ·438 | ·01 | ·072 | ·03 | ·141 | ·07 |
| 38 | 218 | ·114 | ·07 | ·121 | ·03 | ·439 | ·00 | ·073 | ·03 | ·148 | ·07 |
| 39 | 219 | ·108 | ·07 | ·123 | ·03 | ·439 | ·00 | ·074 | ·03 | ·156 | ·06 |
| 40 | 220 | ·101 | ·07 | ·124 | ·02 | ·438 | — ·00 | ·075 | ·02 | ·163 | ·06 |
| 41 | 221 | ·093 | ·07 | ·125 | ·02 | ·436 | + ·01 | ·076 | ·02 | ·170 | ·06 |
| 42 | 222 | ·087 | ·08 | ·126 | ·02 | ·434 | ·01 | ·077 | ·02 | ·176 | ·06 |
| 43 | 223 | ·080 | ·08 | ·127 | ·01 | ·431 | ·01 | ·077 | ·02 | ·183 | ·05 |
| 44 | 224 | ·072 | ·08 | ·128 | ·01 | ·428 | ·02 | ·078 | ·01 | ·189 | ·05 |
| 45 | 225 | — ·065 | — ·08 | — ·128 | + ·01 | — ·424 | + ·02 | + ·078 | — ·01 | + ·195 | — ·05 |

NOTE.—When the *Argument* is on the *right*-hand side of the Table, the sign of th
correction must be changed.

## TABLE,

wing the *Correction* to be applied to the *preceding* Apparent Places of Five Polar Stars, for the terms of Nutation involving 2 ☾.

| α Urs. Min. | | 51 Cephei. | | σ Octantis. | | δ Urs. Min. | | λ Urs. Min. | | *Arg.* | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R. A. | Dec. | R. A. | Dec. | R. A. | Dec. | R. A. | Dec. | R. A. | Dec. | ☾ | |
| s | ″ | s | ″ | s | ″ | s | ″ | s | ″ | ° | ° |
| — ·065 | — ·08 | — ·128 | + ·01 | — ·424 | + ·02 | + ·078 | — ·01 | + ·195 | — ·05 | 135 | 315 |
| ·058 | ·08 | ·128 | ·00 | ·420 | ·02 | ·078 | ·01 | ·201 | ·05 | 136 | 316 |
| ·050 | ·08 | ·129 | ·00 | ·415 | ·03 | ·079 | ·00 | ·207 | ·04 | 137 | 317 |
| ·043 | ·08 | ·129 | + ·00 | ·410 | ·03 | ·079 | ·00 | ·212 | ·04 | 138 | 318 |
| ·035 | ·08 | ·129 | — ·01 | ·404 | ·03 | ·079 | — ·00 | ·216 | ·04 | 139 | 319 |
| ·027 | ·08 | ·128 | ·01 | ·398 | ·03 | ·079 | + ·01 | ·221 | ·04 | 140 | 320 |
| ·020 | ·08 | ·127 | ·01 | ·391 | ·04 | ·079 | ·01 | ·226 | ·03 | 141 | 321 |
| ·012 | ·08 | ·127 | ·02 | ·383 | ·04 | ·079 | ·01 | ·230 | ·03 | 142 | 322 |
| — ·004 | ·08 | ·126 | ·02 | ·376 | ·04 | ·078 | ·02 | ·233 | ·03 | 143 | 323 |
| + ·003 | ·08 | ·125 | ·02 | ·368 | ·05 | ·078 | ·02 | ·237 | ·02 | 144 | 324 |
| ·011 | ·08 | ·124 | ·02 | ·359 | ·05 | ·077 | ·02 | ·240 | ·02 | 145 | 325 |
| ·019 | ·08 | ·123 | ·03 | ·350 | ·05 | ·076 | ·03 | ·243 | ·02 | 146 | 326 |
| ·027 | ·08 | ·121 | ·03 | ·341 | ·05 | ·075 | ·03 | ·246 | ·02 | 147 | 327 |
| ·035 | ·08 | ·120 | ·03 | ·331 | ·06 | ·075 | ·03 | ·249 | ·01 | 148 | 328 |
| ·042 | ·08 | ·118 | ·04 | ·320 | ·06 | ·074 | ·03 | ·251 | ·01 | 149 | 329 |
| ·049 | ·08 | ·116 | ·04 | ·310 | ·06 | ·073 | ·04 | ·253 | ·01 | 150 | 330 |
| ·057 | ·08 | ·115 | ·04 | ·300 | ·06 | ·072 | ·04 | ·254 | ·00 | 151 | 331 |
| ·064 | ·08 | ·112 | ·04 | ·288 | ·07 | ·071 | ·04 | ·256 | ·00 | 152 | 332 |
| ·071 | ·08 | ·110 | ·05 | ·276 | ·07 | ·069 | ·05 | ·257 | — ·00 | 153 | 333 |
| ·079 | ·08 | ·108 | ·05 | ·264 | ·07 | ·068 | ·05 | ·257 | + ·01 | 154 | 334 |
| ·086 | ·08 | ·105 | ·05 | ·252 | ·07 | ·067 | ·05 | ·257 | ·01 | 155 | 335 |
| ·093 | ·07 | ·102 | ·06 | ·239 | ·07 | ·065 | ·05 | ·257 | ·01 | 156 | 336 |
| ·100 | ·07 | ·100 | ·06 | ·226 | ·07 | ·064 | ·06 | ·257 | ·02 | 157 | 337 |
| ·107 | ·07 | ·097 | ·06 | ·213 | ·08 | ·062 | ·06 | ·256 | ·02 | 158 | 338 |
| ·114 | ·07 | ·094 | ·06 | ·199 | ·08 | ·060 | ·06 | ·255 | ·02 | 159 | 339 |
| ·120 | ·07 | ·090 | ·06 | ·186 | ·08 | ·058 | ·06 | ·254 | ·02 | 160 | 340 |
| ·126 | ·07 | ·088 | ·07 | ·172 | ·08 | ·057 | ·06 | ·252 | ·03 | 161 | 341 |
| ·133 | ·07 | ·084 | ·07 | ·157 | ·08 | ·055 | ·07 | ·251 | ·03 | 162 | 342 |
| ·139 | ·06 | ·081 | ·07 | ·142 | ·08 | ·053 | ·07 | ·248 | ·03 | 163 | 343 |
| ·145 | ·06 | ·077 | ·07 | ·128 | ·08 | ·051 | ·07 | ·245 | ·04 | 164 | 344 |
| ·151 | ·06 | ·074 | ·07 | ·112 | ·09 | ·049 | ·07 | ·243 | ·04 | 165 | 345 |
| ·156 | ·06 | ·070 | ·08 | ·098 | ·09 | ·047 | ·08 | ·240 | ·04 | 166 | 346 |
| ·162 | ·06 | ·066 | ·08 | ·084 | ·09 | ·044 | ·08 | ·236 | ·04 | 167 | 347 |
| ·167 | ·05 | ·062 | ·08 | ·069 | ·09 | ·042 | ·08 | ·232 | ·05 | 168 | 348 |
| ·172 | ·05 | ·058 | ·08 | ·053 | ·09 | ·039 | ·08 | ·229 | ·05 | 169 | 349 |
| ·176 | ·05 | ·054 | ·08 | ·038 | ·09 | ·037 | ·08 | ·225 | ·05 | 170 | 350 |
| ·181 | ·05 | ·050 | ·08 | ·023 | ·09 | ·034 | ·08 | ·220 | ·05 | 171 | 351 |
| ·185 | ·04 | ·045 | ·08 | — ·007 | ·09 | ·032 | ·08 | ·215 | ·06 | 172 | 352 |
| ·189 | ·04 | ·042 | ·09 | + ·008 | ·09 | ·030 | ·08 | ·210 | ·06 | 173 | 353 |
| ·192 | ·04 | ·038 | ·09 | ·024 | ·09 | ·027 | ·09 | ·205 | ·06 | 174 | 354 |
| ·197 | ·04 | ·033 | ·09 | ·038 | ·09 | ·025 | ·09 | ·199 | ·06 | 175 | 355 |
| ·200 | ·03 | ·029 | ·09 | ·054 | ·09 | ·022 | ·09 | ·193 | ·06 | 176 | 356 |
| ·203 | ·03 | ·024 | ·09 | ·069 | ·09 | ·019 | ·09 | ·187 | ·07 | 177 | 357 |
| ·205 | ·03 | ·020 | ·09 | ·084 | ·09 | ·016 | ·09 | ·182 | ·07 | 178 | 358 |
| ·209 | ·03 | ·015 | ·09 | ·099 | ·09 | ·014 | ·09 | ·175 | ·07 | 179 | 359 |
| + ·211 | — ·02 | — ·011 | — ·09 | + ·114 | + ·09 | + ·011 | + ·09 | + ·168 | + ·07 | 180 | 360 |

NOTE.—When the *Argument* is on the *right*-hand side of the Table, the sign of the correction must be changed.

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. |
|---|---|---|---|---|---|---|
| 1839. | | | h m s | s | s | ° ′ ″ |
| Jan. 1 | λ Cancri - - | 6 | 8 10 58 ·39 | | | N.24 31 |
| | η Cancri - - | 6 | 8 23 24 ·86 | | | 20 59 |
| | Moon II. L. | - - | 8 11 58 ·53 | 144 ·19 | 70 ·73 | 24 27 18 ·1 |
| | Moon II. U. | 16 ·1 | 8 40 11 ·77 | 138 ·02 | 69 ·17 | 22 32 11 ·7 |
| | q Cancri - - | 6 | 9 10 0 ·41 | | | 18 23 |
| | λ Leonis - - | 4.5 | 9 22 32 ·85 | | | N.23 40 |
| 2 | q Cancri - - | 6 | 9 10 0 ·43 | | | N.18 23 |
| | λ Leonis - - | 4.5 | 9 22 32 ·88 | | | 23 40 |
| | Moon II. L. | - - | 9 7 11 ·59 | 132 ·00 | 67 ·62 | 20 21 7 ·7 |
| | Moon II. U. | 17 ·1 | 9 33 1 ·45 | 126 ·40 | 66 ·16 | 17 57 4 ·1 |
| | α Leonis - * | 1 | 9 59 48 ·81 | | | 12 45 |
| | γ Leonis - - | 2 | 10 11 6 ·25 | | | N.20 39 |
| 3 | α Leonis - * | 1 | 9 59 48 ·84 | | | N.12 45 |
| | γ Leonis - - | 2 | 10 11 6 ·28 | | | 20 39 |
| | Moon II. L. | - - | 9 57 47 ·49 | 121 ·39 | 64 ·82 | 15 22 43 ·9 |
| | Moon II. U. | 18 ·1 | 10 21 37 ·48 | 117 ·07 | 63 ·66 | 12 40 32 ·0 |
| | l Leonis - * | 6 | 10 40 48 ·11 | | | 11 24 |
| | χ Leonis - * | 4.5 | 10 56 43 ·32 | | | N. 8 12 |
| 4 | l Leonis - * | 6 | 10 40 48 ·14 | | | N.11 24 |
| | χ Leonis - * | 4.5 | 10 56 43 ·35 | | | 8 12 |
| | Moon II. L. | - - | 10 44 40 ·25 | 113 ·52 | 62 ·69 | 9 52 33 ·9 |
| | Moon II. U. | 19 ·2 | 11 7 5 ·04 | 110 ·75 | 61 ·92 | 7 0 39 ·2 |
| | τ Leonis - - | 4 | 11 19 40 ·17 | | | 3 45 |
| | β Virginis - | 3.4 | 11 42 19 ·31 | | | N. 2 40 |
| 5 | τ Leonis - - | 4 | 11 19 40 ·20 | | | N. 3 45 |
| | β Virginis - | 3.4 | 11 42 19 ·35 | | | 2 40 |
| | Moon II. L. | - - | 11 29 1 ·38 | 108 ·77 | 61 ·37 | 4 6 2 |
| | Moon II. U. | 20 ·2 | 11 50 38 ·66 | 107 ·57 | 61 ·04 | 1 11 |
| | η Virginis - | 3.4 | 12 11 40 ·53 | | | N. 0 14 |
| | q Virginis - | 5.6 | 12 25 28 ·62 | | | S. 8 34 |
| 6 | η Virginis - | 3.4 | 12 11 40 ·56 | | | N. 0 14 |
| | q Virginis - | 5.6 | 12 25 28 ·65 | | | S. 8 34 |
| | Moon II. L. | - - | 12 12 6 ·30 | 107 ·16 | 60 ·93 | 1 43 |
| | Moon II. U. | 21 ·2 | 12 33 33 ·61 | 107 ·52 | 61 ·04 | 4 37 |
| | ψ Virginis - | 5.6 | 12 45 59 ·52 | | | 8 40 |
| | θ Virginis - | 4.5 | 13 1 37 ·44 | | | S. 4 41 |
| 7 | ψ Virginis - | 5.6 | 12 45 59 ·55 | | | S. 8 40 |
| | θ Virginis - | 4.5 | 13 1 37 ·48 | | | 4 41 |
| | Moon II. L. | - - | 12 55 9 ·82 | 108 ·64 | 61 ·37 | 7 27 56 ·2 |
| | Moon II. U. | 22 ·3 | 13 17 4 ·04 | 110 ·52 | 61 ·91 | 10 14 51 ·1 |
| | m Virginis - | 5.6 | 13 33 10 ·31 | | | 7 53 |
| | x Virginis - | 5.6 | 13 41 7 ·65 | | | S.17 20 |
| 8 | m Virginis - | 5.6 | 13 33 10 ·35 | | | S. 7 53 |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 1839. | | | h m s | s | s | ° ′ ″ | ″ |
| Jan. 8 | $\alpha$ Virginis - | 5.6 | 13 41 7·68 | | | S. 17 20 | |
| | Moon II. L. | - - | 13 39 25·29 | 113·15 | 62·65 | 12 56 38·3 | — 793·9 |
| | Moon II. U. | 23·3 | 14 2 22·39 | 116·49 | 63·58 | 15 31 54·0 | 757·4 |
| | $\alpha^2$ Libræ - - | 3 | 14 41 58·61 | | | S. 15 22 | |
| 9 | $\alpha^3$ Libræ - - | 3 | 14 41 58·64 | | | S. 15 22 | |
| | Moon II. L. | - - | 14 26 3·71 | 120·51 | 64·68 | 17 59 2·3 | — 712·5 |
| | Moon II. U. | 24·3 | 14 50 36·99 | 125·13 | 65·93 | 20 16 16·0 | 658·1 |
| | $\iota$ Libræ - - | 5.6 | 15 3 2·80 | | | 19 11 | |
| | $\chi$ Libræ - - | 5.6 | 15 30 45·80 | | | S. 23 17 | |
| 10 | $\iota$ Libræ - - | 5.6 | 15 3 2·83 | | | S. 19 11 | |
| | $\chi$ Libræ - - | 5.6 | 15 30 45·84 | | | 23 17 | |
| | Moon II. L. | - - | 15 16 8·80 | 130·24 | 67·27 | 22 21 34·0 | — 593·0 |
| | Moon II. U. | 25·3 | 15 42 43·92 | 135·65 | 68·67 | 24 12 39·7 | 515·9 |
| | $\sigma$ Scorpii - | 4 | 16 11 23·91 | | | 25 12 | |
| | $\alpha$ Scorpii - | 1 | 16 19 31·82 | | | S. 26 4 | |
| 11 | Moon II. L. | - - | 16 10 24·59 | 141·12 | 70·06 | S. 25 47 6·5 | — 426·3 |
| | Moon II. U. | 26·4 | 16 39 9·73 | 146·34 | 71·37 | 27 2 20·8 | 323·9 |
| 12 | Moon II. L. | - - | 17 8 54·22 | 150·95 | 72·49 | S. 27 55 51·0 | — 209·1 |
| | Moon II. U. | 27·4 | 17 39 28·62 | 154·60 | 73·37 | 28 25 17·8 | — 83·7 |
| 13 | Moon II. L. | - - | 18 10 39·52 | 156·98 | 73·94 | S. 28 28 48·9 | + 49·6 |
| | Moon II. U. | 28·5 | 18 42 10·45 | 157·91 | 74·15 | 28 5 9·9 | 187·2 |
| 14 | Moon II. L. | - - | 19 13 43·65 | 157·37 | 74·01 | S. 27 13 55·6 | + 324·8 |
| 15 | Moon II. U. | 29·5 | 19 45 2·06 | 155·49 | 73·55 | S. 25 55 32·4 | + 457·9 |
| | Moon I. L. | - - | 20 13 25·55 | 152·69 | 72·84 | 24 11 18·6 | 582·6 |
| 16 | Moon I. U. | 0·9 | 20 43 36·68 | 149·07 | 71·94 | S. 22 3 15·3 | + 695·6 |
| | Moon I. L. | - - | 21 13 1·98 | 145·12 | 70·96 | 19 33 59·0 | 794·6 |
| 17 | Moon I. U. | 2·0 | 21 41 39·67 | 141·19 | 69·98 | S. 16 46 25·5 | + 878·3 |
| | Moon I. L. | - - | 22 9 31·75 | 137·56 | 69·07 | 13 43 44·8 | 945·8 |
| 18 | Moon I. U. | 3·0 | 22 36 43·31 | 134·47 | 68·30 | S. 10 29 9·7 | + 997·4 |
| | Moon I. L. | - - | 23 3 21·78 | 132·07 | 67·70 | 7 5 50·9 | 1033·2 |
| 19 | $\phi$ Aquarii - | 5 | 23 5 58·52 | | | S. 6 55 | |
| | Moon I. U. | 4·1 | 23 29 36·12 | 130·46 | 67·31 | 3 36 54·7 | +1053·7 |
| | Moon I. L. | - - | 23 55 36·37 | 129·73 | 67·14 | S. 0 5 21·8 | 1059·4 |
| | $\omega$ Piscium * | 4.5 | 23 51 2·31 | | | N. 5 58 | |
| 20 | $\omega$ Piscium * | 4.5 | 23 51 2·30 | | | N. 5 58 | |
| | Moon I. U. | 5·1 | 0 21 33·11 | 129·88 | 67·22 | 3 25 53·6 | +1050·8 |
| | Moon I. L. | - - | 0 47 37·07 | 130·93 | 67·52 | 6 54 0·0 | +1028·0 |
| | $\delta$ Piscium * | 5 | 0 40 19·91 | | | N. 6 42 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Decl. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 1839. | | | h m s | s | s | ° ′ ″ | |
| Jan. 20 | ε Piscium * | 4 | 0 54 35 ·58 | | | N. 7 1 | |
| 21 | δ Piscium * | 5 | 0 40 19 ·90 | | | N. 6 42 | |
| | ε Piscium * | 4 | 0 54 35 ·57 | | | 7 1 | |
| | Moon I. U. | 6 ·1 | 1 13 58 ·75 | 132 ·83 | 68 ·05 | 10 16 9 ·3 | +99 |
| | Moon I. L. | - - | 1 40 48 ·19 | 135 ·54 | 68 ·78 | 13 29 33 ·1 | 94 |
| | o Piscium * | 5 | 1 36 53 ·96 | | | 8 21 | |
| | $\gamma^1$ Arietis - - | 4.5 | 1 44 42 ·46 | | | N. 18 30 | |
| 22 | o Piscium * | 5 | 1 36 53 ·95 | | | N. 8 21 | |
| | $\gamma^1$ Arietis - - | 4.5 | 1 44 42 ·45 | | | 18 30 | |
| | Moon I. U. | 7 ·2 | 2 8 14 ·27 | 138 ·92 | 69 ·68 | 16 31 21 ·5 | +87 |
| | Moon I. L. | - - | 2 36 24 ·18 | 142 ·81 | 70 ·68 | 19 18 42 ·7 | 73 |
| | π Arietis - - | 5 | 2 40 19 ·63 | | | 16 47 | |
| | ε Arietis - - | 5 | 2 50 1 ·57 | | | N. 20 42 | |
| 23 | π Arietis - - | 5 | 2 40 19 ·62 | | | N. 16 47 | |
| | ε Arietis - - | 5 | 2 50 1 ·56 | | | 20 42 | |
| | Moon I. U. | 8 ·2 | 3 5 22 ·71 | 146 ·97 | 71 ·72 | 21 48 44 ·7 | +70 |
| | Moon I. L. | - - | 3 35 11 ·29 | 151 ·09 | 72 ·74 | 23 58 39 ·6 | 59 |
| | η Tauri - - | 3 | 3 37 56 ·26 | | | 23 36 | |
| | $A^1$ Tauri - - | 5 | 3 55 12 ·00 | | | N. 21 38 | |
| 24 | η Tauri - - | 3 | 3 37 56 ·25 | | | N. 23 36 | |
| | $A^1$ Tauri - - | 5 | 3 55 11 ·99 | | | 21 38 | |
| | Moon I. U. | 9 ·2 | 4 5 47 ·36 | 154 ·82 | 73 ·64 | 25 45 49 ·7 | +47 |
| | Moon I. L. | - - | 4 37 3 ·72 | 157 ·74 | 74 ·33 | 27 7 57 ·5 | 14 |
| | τ Tauri - - | 5 | 4 32 36 ·44 | | | 22 39 | |
| | ι Tauri - - | 4.5 | 4 53 29 ·89 | | | N. 21 21 | |
| 25 | τ Tauri - - | 5 | 4 32 36 ·43 | | | N. 22 39 | |
| | ι Tauri - - | 4.5 | 4 53 29 ·88 | | | 21 21 | |
| | Moon I. U. | 10 ·3 | 5 8 48 ·63 | 159 ·51 | 74 ·72 | 28 3 16 ·8 | +[illegible] |
| | Moon I. L. | - - | 5 40 46 ·48 | 159 ·87 | 74 ·76 | 28 30 42 ·8 | + 6 |
| | l Aurigæ - | 5 | 5 28 19 ·39 | | | 30 23 | |
| | C Tauri - - | 4.5 | 5 43 14 ·16 | | | N 27 34 | |
| 26 | l Aurigæ - | 5 | 5 28 19 ·39 | | | N. 30 23 | |
| | C Tauri - - | 4.5 | 5 43 14 ·15 | | | 27 34 | |
| | Moon I. U. | 11 ·3 | 6 12 39 ·40 | 158 ·69 | 74 ·42 | 28 30 1 ·6 | − 7 |
| | Moon I. L. | - - | 6 44 9 ·16 | 156 ·03 | 73 ·72 | 28 1 50 ·6 | 20 |
| | ε Geminor. | 3 | 6 34 3 ·26 | | | 25 17 | |
| | τ Geminor. | 5 | 7 0 55 ·07 | | | N. 30 30 | |
| 27 | ε Geminor. | 3 | 6 34 3 ·26 | | | N. 25 17 | |
| | τ Geminor. | 5 | 7 0 55 ·08 | | | 30 30 | |
| | Moon I. U. | 12 ·4 | 7 14 59 ·27 | 152 ·13 | 72 ·71 | 27 7 36 ·7 | −33 |
| | Moon I. L. | - - | 7 44 56 ·58 | 147 ·30 | 71 ·47 | 25 49 25 ·3 | −14 |
| | κ Geminor. | 4 | 7 34 45 ·10 | | | 24 47 | |
| | 6 Cancri - - | 5.6 | 7 53 38 ·85 | | | N. 28 14 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 1839. | | | h m s | s | s | ° ′ ″ | ″ |
| Jan. 28 | κ Geminor. | 4 | 7 34 45 ·11 | | | N. 24 47 | |
| | 6 Cancri - - | 5.6 | 7 53 38 ·85 | | | 28 14 | |
| | Moon I. U. | 13 ·4 | 8 13 52 ·25 | 141 ·92 | 70 ·08 | 24 9 52 ·2 | —546 ·6 |
| | δ Cancri - - | 4.5 | 8 35 33 ·57 | | | 18 45 | |
| | ξ Cancri - - | 5.6 | 9 0 7 ·49 | | | N. 22 42 | |
| 29 | δ Cancri - - | 4.5 | 8 35 33 ·57 | | | N. 18 45 | |
| | ξ Cancri - - | 5.6 | 9 0 7 ·50 | | | 22 42 | |
| | Moon I. L. | - - | 8 41 41 ·86 | 136 ·34 | 68 ·62 | 22 11 44 ·8 | —632 ·2 |
| | Moon II. U. | 14 ·4 | 9 10 39 ·21 | 130 ·63 | 67 ·18 | 19 57 57 ·0 | 703 ·5 |
| | λ Leonis - - | 4.5 | 9 22 33 ·47 | | | 23 40 | |
| | o Leonis - * | 4 | 9 32 35 ·02 | | | N. 10 37 | |
| 30 | λ Leonis - - | 4.5 | 9 22 33 ·49 | | | N. 23 40 | |
| | o Leonis - * | 4 | 9 32 35 ·03 | | | 10 37 | |
| | Moon II. L. | - - | 9 36 15 ·67 | 125 ·52 | 65 ·82 | 17 31 15 ·9 | —761 ·2 |
| | Moon II. U. | 15 ·5 | 10 0 53 ·66 | 120 ·91 | 64 ·57 | 14 54 19 ·1 | 806 ·4 |
| | ρ Leonis - * | 4 | 10 24 21 ·43 | | | 10 8 | |
| | l Leonis - * | 6 | 10 40 48 ·82 | | | N. 11 24 | |
| 31 | ρ Leonis - * | 4 | 10 24 21 ·45 | | | N. 10 8 | |
| | l Leonis - * | 6 | 10 40 48 ·84 | | | 11 24 | |
| | Moon II. L. | - - | 10 24 40 ·08 | 116 ·93 | 63 ·49 | 12 9 28 ·8 | —840 ·2 |
| | Moon II. U. | 16 ·5 | 10 47 42 ·76 | 113 ·63 | 62 ·58 | 9 18 55 ·0 | 863 ·9 |
| | σ Leonis - * | 4 | 11 12 51 ·27 | | | 6 55 | |
| | τ Leonis - - | 4 | 11 19 40 ·92 | | | N. 3 45 | |
| Feb. 1 | σ Leonis - * | 4 | 11 12 51 ·29 | | | N. 6 55 | |
| | τ Leonis - - | 4 | 11 19 40 ·95 | | | 3 45 | |
| | Moon II. L. | - - | 11 10 10 ·03 | 111 ·04 | 61 ·87 | 6 24 32 ·1 | —878 ·5 |
| | Moon II. U. | 17 ·5 | 11 32 10 ·59 | 109 ·18 | 61 ·37 | 3 28 2 ·5 | 885 ·2 |
| | β Virginis - | 3.4 | 11 42 20 ·13 | | | 2 40 | |
| | o Virginis * | 4.5 | 11 57 1 ·87 | | | N. 9 38 | |
| 2 | β Virginis - | 3.4 | 11 42 20 ·15 | | | N. 2 40 | |
| | o Virginis * | 4.5 | 11 57 1 ·90 | | | 9 38 | |
| | Moon II. L. | - - | 11 53 53 ·14 | 108 ·04 | 61 ·07 | N. 0 30 57 ·2 | —884 ·5 |
| | Moon II. U. | 18 ·5 | 12 15 26 ·39 | 107 ·62 | 60 ·98 | S. 2 25 19 ·0 | 877 ·2 |
| | $\gamma^1$ Virginis - | 4 | 12 33 31 ·26 | | | 0 34 | |
| | ψ Virginis - | 5.6 | 12 46 0 ·38 | | | S. 8 40 | |
| 3 | $\gamma^1$ Virginis - | 4 | 12 33 31 ·29 | | | S. 0 34 | |
| | ψ Virginis - | 5.6 | 12 46 0 ·40 | | | 8 40 | |
| | Moon II. L. | - - | 12 36 59 ·03 | 107 ·94 | 61 ·11 | 5 19 29 ·3 | —863 ·5 |
| | Moon II. U. | 19 ·6 | 12 58 39 ·72 | 108 ·97 | 61 ·43 | 8 10 18 ·1 | 843 ·6 |
| | α Virginis - | 1 | 13 16 44 ·05 | | | S. 10 19 | |
| 4 | α Virginis - | 1 | 13 16 44 ·08 | | | S. 10 19 | |
| | Moon II. L. | - - | 13 20 37 ·04 | 110 ·70 | 61 ·96 | 10 56 30 ·6 | —817 ·4 |
| | Moon II. U. | 20 ·6 | 13 42 59 ·41 | 113 ·14 | 62 ·68 | S. 13 36 48 ·7 | —784 ·5 |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s D in 1 h of Lo |
|---|---|---|---|---|---|---|---|
| 1839. | | | h m s | s | s | ° ′ ″ | |
| Feb. 4 | λ Virginis - | 4 | 14 10 25 ·30 | | | S. 12 38 | |
| 5 | λ Virginis - | 4 | 14 10 25 ·33 | | | S. 12 38 | |
| | Moon II. L. | - - | 14 5 55 ·07 | 116 ·25 | 63 ·58 | 16 9 49 ·8 | — 74 |
| | Moon II. U. | 21 ·6 | 14 29 31 ·99 | 120 ·00 | 64 ·64 | 18 34 3 ·3 | 69 |
| | 20 Libræ - - | 3.4 | 14 54 40 ·37 | | | 24 39 | |
| | ι Libræ - - | 5.6 | 15 3 3 ·74 | | | S. 19 11 | |
| 6 | 20 Libræ - - | 3.4 | 14 54 40 ·41 | | | S. 24 39 | |
| | ι Libræ - - | 5.6 | 15 3 3 ·77 | | | 19 11 | |
| | Moon II. L. | - - | 14 53 57 ·43 | 124 ·33 | 65 ·84 | 20 47 48 ·6 | — 63 |
| | Moon II. U. | 22 ·7 | 15 19 17 ·63 | 129 ·11 | 67 ·14 | 22 49 13 ·2 | 57 |
| | *b* Scorpii - | 5 | 15 41 18 ·63 | | | 25 15 | |
| | δ Scorpii - | 3 | 15 50 49 ·58 | | | S. 22 9 | |
| 7 | *b* Scorpii - | 5 | 15 41 18 ·66 | | | S. 25 15 | |
| | δ Scorpii - | 3 | 15 50 49 ·61 | | | 22 9 | |
| | Moon II. L. | - - | 15 45 37 ·30 | 134 ·21 | 68 ·49 | 24 36 14 ·6 | — 49 |
| | Moon II. U. | 23 ·7 | 16 12 58 ·93 | 139 ·40 | 69 ·84 | 26 6 38 ·4 | 40 |
| | α Scorpii - | 1 | 16 19 32 ·78 | | | 26 4 | |
| | τ Scorpii - | 3.4 | 16 25 52 ·24 | | | S. 27 52 | |
| 8 | α Scorpii - | 1 | 16 19 32 ·82 | | | S. 26 4 | |
| | τ Scorpii - | 3.4 | 16 25 52 ·28 | | | 27 52 | |
| | Moon II. L. | - - | 16 41 22 ·11 | 144 ·42 | 71 ·12 | 27 18 4 ·8 | — 30 |
| | Moon II. U. | 24 ·7 | 17 10 43 ·00 | 148 ·95 | 72 ·25 | 28 8 13 ·2 | 19 |
| | *p* Sagittarii | 5 | 17 37 25 ·37 | | | 27 46 | |
| | $\gamma^2$ Sagittarii | 4 | 17 55 27 ·80 | | | S. 30 25 | |
| 9 | Moon II. L. | - - | 17 40 53 ·83 | 152 ·69 | 73 ·16 | S. 28 34 51 ·8 | — 7 |
| | Moon II. U. | 25 ·8 | 18 11 43 ·20 | 155 ·34 | 73 ·79 | 28 36 8 ·7 | + 5 |
| 10 | Moon II. L. | - - | 18 42 56 ·93 | 156 ·72 | 74 ·11 | S. 28 10 43 ·1 | + 19 |
| | Moon II. U. | 26 ·8 | 19 14 19 ·16 | 156 ·76 | 74 ·08 | 27 17 54 ·0 | 33 |
| 11 | Moon II. L. | - - | 19 45 34 ·26 | 155 ·56 | 73 ·76 | S. 25 57 48 ·5 | + 46 |
| | Moon II. U. | 27 ·9 | 20 16 28 ·51 | 153 ·33 | 73 ·18 | 24 11 21 ·7 | 59 |
| 12 | Moon II. L. | - - | 20 46 51 ·41 | 150 ·39 | 72 ·41 | S. 22 0 14 ·6 | + 71 |
| | Moon II. U. | 28 ·9 | 21 16 36 ·35 | 147 ·07 | 71 ·56 | 19 26 45 ·3 | 81 |
| 13 | Moon II. L. | - - | 21 45 40 ·87 | 143 ·70 | 70 ·68 | S. 16 33 44 ·5 | + 90 |
| 14 | Moon I. U. | 0 ·4 | 22 11 46 ·33 | 140 ·69 | 69 ·88 | S. 13 24 21 ·6 | + 98 |
| | Moon I. L. | - - | 22 39 37 ·96 | 138 ·00 | 69 ·18 | 10 2 2 ·0 | 10 |
| 15 | Moon I. U. | 1 ·5 | 23 7 0 ·90 | 135 ·94 | 68 ·66 | S. 6 30 15 ·9 | +10 |
| | Moon I. L. | - - | 23 34 3 ·42 | 134 ·62 | 68 ·34 | S. 2 52 37 ·7 | 10 |
| 16 | Moon I. U. | 2 ·5 | 0 0 54 ·88 | 134 ·10 | 68 ·23 | N. 0 47 21 ·1 | +11 |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 1839. | | | h m s | s | s | ° ′ ″ | ″ |
| eb. 16 | Moon I. L. | - - | 0 27 45 ·14 | 134 ·42 | 68 ·34 | N. 4 26 12 ·7 | +1085 ·8 |
| 17 | Moon I. U. | 3 ·5 | 0 54 44 ·23 | 135 ·57 | 68 ·68 | N. 8 0 33 ·5 | +1054 ·9 |
| | Moon I. L. | - - | 1 22 1 ·84 | 137 ·50 | 69 ·22 | 11 27 5 ·1 | 1007 ·7 |
| 18 | η Piscium - | 4 | 1 22 52 ·35 | | | N.14 31 | |
| | o Piscium * | 5 | 1 36 53 ·65 | | | 8 21 | |
| | Moon I. U. | 4 ·6 | 1 49 46 ·82 | 140 ·11 | 69 ·92 | 14 42 35 ·2 | + 944 ·7 |
| | Moon I. L. | - - | 2 18 6 ·51 | 143 ·25 | 70 ·76 | 17 43 58 ·0 | 866 ·6 |
| | ψ Arietis - - | 6 | 2 21 58 ·83 | | | 16 59 | |
| | ν Arietis - - | 5.6 | 2 29 40 ·80 | | | N.21 16 | |
| 19 | ψ Arietis - - | 6 | 2 21 58 ·82 | | | N.16 59 | |
| | ν Arietis - - | 5.6 | 2 29 40 ·78 | | | 21 16 | |
| | Moon I. U. | 5 ·6 | 2 47 6 ·21 | 146 ·73 | 71 ·67 | 20 28 14 ·6 | + 773 ·9 |
| | Moon I. L. | - - | 3 16 48 ·37 | 150 ·28 | 72 ·59 | 22 52 36 ·9 | 667 ·7 |
| | δ Arietis - - | 4 | 3 2 26 ·07 | | | 19 7 | |
| | η Tauri - - | 3 | 3 37 55 ·87 | | | N.23 36 | |
| 20 | δ Arietis - - | 4 | 3 2 26 ·06 | | | N.19 7 | |
| | η Tauri - - | 3 | 3 37 55 ·85 | | | 23 36 | |
| | Moon I. U. | 6 ·6 | 3 47 11 ·90 | 153 ·57 | 73 ·42 | 24 54 31 ·3 | + 549 ·5 |
| | Moon I. L. | - - | 4 18 11 ·66 | 156 ·26 | 74 ·09 | 26 31 46 ·4 | 421 ·5 |
| | $\upsilon^1$ Tauri - - | 5 | 4 16 41 ·23 | | | 22 27 | |
| | τ Tauri - - | 5 | 4 32 36 ·08 | | | N.22 39 | |
| 21 | $\upsilon^1$ Tauri - - | 5 | 4 16 41 ·21 | | | N.22 27 | |
| | τ Tauri - - | 5 | 4 32 36 ·08 | | | 22 39 | |
| | Moon I. U. | 7 ·7 | 4 49 38 ·39 | 158 ·01 | 74 ·51 | 27 42 39 ·6 | + 286 ·4 |
| | Moon I. L. | - - | 5 21 19 ·14 | 158 ·56 | 74 ·63 | 28 26 5 ·9 | 147 ·7 |
| | β Tauri - - | 2 | 5 16 8 ·25 | | | 28 28 | |
| | C Tauri - - | 4.5 | 5 43 13 ·88 | | | N.27 34 | |
| 22 | β Tauri - - | 2 | 5 16 8 ·24 | | | N.28 28 | |
| | C Tauri - - | 4.5 | 5 43 13 ·86 | | | 27 34 | |
| | Moon I. U. | 8 ·7 | 5 52 58 ·48 | 157 ·76 | 74 ·41 | 28 41 44 ·0 | + 9 ·0 |
| | Moon I. L. | - - | 6 24 20 ·07 | 155 ·61 | 73 ·84 | 28 29 57 ·8 | — 125 ·7 |
| | κ Aurigæ - | 4 | 6 5 8 ·61 | | | 29 33 | |
| | ε Geminor. | 3 | 6 34 3 ·07 | | | N.25 17 | |
| 23 | κ Aurigæ - | 4 | 6 5 8 ·60 | | | N.29 33 | |
| | ε Geminor. | 3 | 6 34 3 ·06 | | | 25 17 | |
| | Moon I. U. | 9 ·8 | 6 55 8 ·46 | 152 ·27 | 72 ·98 | 27 51 55 ·7 | — 253 ·1 |
| | Moon I. L. | - - | 7 25 10 ·77 | 147 ·98 | 71 ·86 | 26 49 21 ·8 | 370 ·6 |
| | ι Geminor. | 4 | 7 15 45 ·11 | | | 28 7 | |
| | β Geminor. | 2 | 7 35 29 ·35 | | | N.28 25 | |
| 24 | ι Geminor. | 4 | 7 15 45 ·10 | | | N.28 7 | |
| | β Geminor. | 2 | 7 35 29 ·34 | | | 28 25 | |
| | *Moon I. U.* | *10 ·8* | 7 54 17 ·50 | 143 ·07 | 70 ·57 | N.25 24 28 ·6 | — 476 ·1 |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hr. of Long. |
|---|---|---|---|---|---|---|---|
| 1839. | | | h m s | s | s | ° ′ ″ | ″ |
| Feb. 24 | Moon I. L. | - - | 8 22 23 ·09 | 137 ·84 | 69 ·18 | N.23 39 45 ·4 | −568 |
| | λ Cancri - - | 6 | 8 10 58 ·84 | | | 24 31 | |
| | γ Cancri - - | 5 | 8 33 59 ·68 | | | N.22 3 | |
| 25 | λ Cancri - - | 6 | 8 10 58 ·83 | | | N.24 31 | |
| | γ Cancri - - | 5 | 8 33 59 ·67 | | | 22 3 | |
| | Moon I. U. | 11 ·8 | 8 49 25 ·65 | 132 ·61 | 67 ·77 | 21 37 49 ·1 | −648 |
| | Moon I. L. | - - | 9 15 26 ·56 | 127 ·60 | 66 ·41 | 19 21 16 ·0 | 715 |
| | λ Leonis - - | 4.5 | 9 22 33 ·69 | | | 23 40 | |
| | o Leonis - * | 4 | 9 32 35 ·24 | | | N.10 37 | |
| 26 | λ Leonis - - | 4.5 | 9 22 33 ·69 | | | N.23 40 | |
| | o Leonis * | 4 | 9 32 35 ·24 | | | 10 37 | |
| | Moon I. U. | 12 ·9 | 9 40 29 ·57 | 122 ·99 | 65 ·13 | 16 52 37 ·4 | −769 |
| | Moon I. L. | - - | 10 4 40 ·25 | 118 ·89 | 63 ·98 | 14 14 13 ·2 | 812 |
| | α Leonis - * | 1 | 9 59 49 ·75 | | | 12 45 | |
| | γ Leonis - - | 2 | 10 11 7 ·29 | | | N.20 39 | |
| 27 | α Leonis - * | 1 | 9 59 49 ·76 | | | N.12 45 | |
| | γ Leonis - - | 2 | 10 11 7 ·29 | | | 20 39 | |
| | Moon I. U. | 13 ·9 | 10 28 5 ·32 | 115 ·39 | 62 ·99 | 11 28 16 ·2 | −845 |
| | l Leonis - * | 6 | 10 40 49 ·22 | | | 11 24 | |
| | χ Leonis - * | 4.5 | 10 56 44 ·49 | | | N. 8 12 | |
| 28 | l Leonis - * | 6 | 10 40 49 ·23 | | | N.11 24 | |
| | χ Leonis - * | 4.5 | 10 56 44 ·50 | | | 8 12 | |
| | Moon II. L. | - - | 10 52 56 ·60 | 112 ·42 | 62 ·19 | 8 36 46 ·0 | −868 |
| | Moon II. U. | 14 ·9 | 11 15 11 ·96 | 110 ·26 | 61 ·57 | 5 41 32 ·6 | 882 |
| | υ Leonis - - | 4.5 | 11 28 43 ·26 | | | 0 4 | |
| | β Virginis - | 3.4 | 11 42 20 ·64 | | | N. 2 40 | |
| Mar. 1 | υ Leonis - - | 4.5 | 11 28 43 ·27 | | | N. 0 4 | |
| | β Virginis - | 3.4 | 11 42 20 ·65 | | | 2 40 | |
| | Moon II. L. | - - | 11 37 5 ·42 | 108 ·77 | 61 ·15 | N. 2 44 16 ·8 | −888 |
| | Moon II. U. | 16 ·0 | 11 58 45 ·00 | 107 ·94 | 60 ·92 | S. 0 13 27 ·1 | 887 |
| | η Virginis - | 3.4 | 12 11 41 ·94 | | | N. 0 14 | |
| | q Virginis - | 5.6 | 12 25 30 ·09 | | | S. 8 34 | |
| 2 | η Virginis - | 3.4 | 12 11 41 ·96 | | | N. 0 14 | |
| | q Virginis - | 5.6 | 12 25 30 ·10 | | | S. 8 34 | |
| | Moon II. L. | - - | 12 20 18 ·74 | 107 ·79 | 60 ·90 | 3 10 11 ·6 | −878 |
| | Moon II. U. | 17 ·0 | 12 41 54 ·61 | 108 ·29 | 61 ·08 | 6 4 31 ·8 | 858 |
| | θ Virginis - | 4.5 | 13 1 39 ·00 | | | 4 41 | |
| | α Virginis - | 1 | 13 16 44 ·74 | | | S.10 19 | |
| 3 | θ Virginis - | 4.5 | 13 1 39 ·02 | | | S. 4 41 | |
| | α Virginis - | 1 | 13 16 44 ·76 | | | 10 19 | |
| | Moon II. L. | - - | 13 3 40 ·36 | 109 ·44 | 61 ·44 | 8 55 7 ·2 | −841 |
| | Moon II. U. | 18 ·0 | 13 25 43 ·81 | 111 ·24 | 61 ·99 | 11 40 35 ·0 | −812 |
| | x Virginis - | 5.6 | 13 41 9 ·35 | | | S.17 20 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 39. | | | h m s | s | s | ° ′ ″ | ″ |
| r. 4 | $\chi$ Virginis - | 5.6 | 13 41 9 ·37 | | | S. 17 20 | |
| | Moon II. L. - - | | 13 48 12 ·52 | 113 ·65 | 62 ·72 | 14 19 30 ·9 | —775 ·9 |
| | Moon II. U. | 19 ·0 | 14 11 13 ·71 | 116 ·65 | 63 ·61 | 16 50 27 ·7 | 732 ·3 |
| | $\alpha^2$ Libræ - - | 3 | 14 42 0 ·39 | | | 15 22 | |
| | Libræ - - | 6 | 14 48 3 ·01 | | | S. 20 40 | |
| 5 | $\alpha^2$ Libræ - - | 3 | 14 42 0 ·42 | | | S. 15 22 | |
| | Libræ - - | 6 | 14 48 3 ·03 | | | 20 40 | |
| | Moon II. L. - - | | 14 34 54 ·21 | 120 ·19 | 64 ·63 | 19 11 52 ·8 | —680 ·5 |
| | Moon II. U. | 20 ·1 | 14 59 20 ·11 | 124 ·20 | 65 ·78 | 21 22 6 ·0 | 620 ·2 |
| | $\gamma^1$ Libræ - - | 4.5 | 15 26 32 ·86 | | | 14 15 | |
| | $b$ Scorpii - | 5 | 15 41 19 ·55 | | | S. 25 15 | |
| 6 | $\gamma^1$ Libræ - - | 4.5 | 15 26 32 ·89 | | | S. 14 15 | |
| | $b$ Scorpii - | 5 | 15 41 19 ·59 | | | 25 15 | |
| | Moon II. L. - - | | 15 24 36 ·36 | 128 ·56 | 66 ·99 | 23 19 20 ·2 | —550 ·6 |
| | Moon II. U. | 21 ·1 | 15 50 46 ·49 | 133 ·15 | 68 ·25 | 25 1 40 ·9 | 471 ·2 |
| | $\sigma$ Scorpii - | 4 | 16 11 25 ·80 | | | 25 12 | |
| | $\alpha$ Scorpii - | 1 | 16 19 33 ·72 | | | S. 26 4 | |
| 7 | $\sigma$ Scorpii - | 4 | 16 11 25 ·84 | | | S. 25 12 | |
| | $\alpha$ Scorpii - | 1 | 16 19 33 ·76 | | | 26 4 | |
| | Moon II. L. - - | | 16 17 51 ·92 | 137 ·75 | 69 ·48 | 26 27 7 ·7 | —381 ·6 |
| | Moon II. U. | 22 ·1 | 16 45 51 ·56 | 142 ·14 | 70 ·64 | 27 33 38 ·1 | 281 ·8 |
| | A Ophiuchi | 4.5 | 17 5 28 ·14 | | | 26 22 | |
| | $\theta$ Ophiuchi | 3.4 | 17 12 8 ·30 | | | S. 24 50 | |
| 8 | A Ophiuchi | 4.5 | 17 5 28 ·17 | | | S. 26 22 | |
| | $\theta$ Ophiuchi | 3.4 | 17 12 8 ·34 | | | 24 50 | |
| | Moon II. L. - - | | 17 14 41 ·36 | 146 ·06 | 71 ·66 | 28 19 11 ·7 | —172 ·2 |
| | Moon II. U. | 23 ·2 | 17 44 14 ·19 | 149 ·27 | 72 ·48 | 28 41 57 ·3 | — 54 ·1 |
| | $\delta$ Sagittarii | 3.4 | 18 10 41 ·72 | | | 29 53 | |
| | $\lambda$ Sagittarii | 4 | 18 18 2 ·54 | | | S. 25 30 | |
| 9 | $\delta$ Sagittarii | 3.4 | 18 10 41 ·75 | | | S. 29 53 | |
| | $\lambda$ Sagittarii | 4 | 18 18 2 ·57 | | | 25 30 | |
| | Moon II. L. - - | | 18 14 20 ·19 | 151 ·55 | 73 ·05 | 28 40 22 ·2 | + 70 ·9 |
| | Moon II. U. | 24 ·2 | 18 44 47 ·33 | 152 ·78 | 73 ·35 | 28 13 17 ·4 | 200 ·4 |
| | $\tau$ Sagittarii | 4 | 18 56 53 ·49 | | | 27 54 | |
| | $h^2$ Sagittarii | 4.5 | 19 26 54 ·50 | | | S. 25 14 | |
| 10 | $\tau$ Sagittarii | 4 | 18 56 53 ·53 | | | S. 27 54 | |
| | $h^2$ Sagittarii | 4.5 | 19 26 54 ·53 | | | 25 14 | |
| | Moon II. L. - - | | 19 15 22 ·63 | 152 ·92 | 73 ·37 | 27 20 6 ·9 | +331 ·4 |
| | Moon II. U. | 25 ·3 | 19 45 53 ·44 | 152 ·06 | 73 ·13 | 26 0 50 ·9 | 460 ·8 |
| | $\pi$ Capricorni | 5 | 20 18 5 ·94 | | | 18 44 | |
| | $\psi$ Capricorni | 4.5 | 20 36 33 ·29 | | | S. 25 51 | |
| 11 | Moon II. L. - - | | 20 16 8 ·83 | 150 ·38 | 72 ·68 | S. 24 16 7 ·9 | +585 ·4 |
| | Moon II. U. | 26 ·3 | 20 46 0 ·43 | 148 ·14 | 72 ·08 | S. 22 7 12 ·8 | +702 ·3 |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Decl. in 1 hour of L. |
|---|---|---|---|---|---|---|---|
| 1839. | | | h m s | s | s | ° ′ ″ | |
| Mar. 12 | Moon II. L. | - - | 21 15 23 ·16 | 145 ·62 | 71 ·40 | S. 19 35 54 ·6 | + |
| | Moon II. U. | 27 ·3 | 21 44 15 ·34 | 143 ·09 | 70 ·71 | 16 44 30 ·1 | |
| 13 | Moon II. L. | - - | 22 12 38 ·36 | 140 ·81 | 70 ·08 | S. 13 35 42 ·6 | + |
| | Moon II. U. | 28 ·4 | 22 40 36 ·44 | 138 ·97 | 69 ·57 | 10 12 34 ·0 | |
| 14 | Moon II. L. | - - | 23 8 15 ·93 | 137 ·73 | 69 ·22 | S. 6 38 24 ·7 | + |
| 15 | Moon II. U. | 29 ·4 | 23 35 44 ·68 | 137 ·20 | 69 ·05 | S. 2 56 46 ·1 | + |
| | Moon I. L. | - - | 0 0 53 ·57 | 137 ·43 | 69 ·10 | N. 0 48 37 ·9 | |
| 16 | Moon I. U. | 0 ·9 | 0 28 28 ·04 | 138 ·44 | 69 ·37 | N. 4 33 56 ·9 | + |
| | Moon I. L. | - - | 0 56 19 ·30 | 140 ·24 | 69 ·85 | 8 15 16 ·1 | |
| 17 | Moon I. U. | 2 ·0 | 1 24 36 ·65 | 142 ·77 | 70 ·51 | N. 11 48 40 ·2 | + |
| | Moon I. L. | - - | 1 53 28 ·01 | 145 ·88 | 71 ·32 | 15 10 15 ·7 | |
| 18 | Moon I. U. | 3 ·0 | 2 22 59 ·31 | 149 ·39 | 72 ·23 | N. 18 16 18 ·1 | + |
| | Moon I. L. | - - | 2 53 13 ·87 | 153 ·04 | 73 ·18 | 21 3 13 ·6 | |
| 19 | ε Arietis - - | 5 | 2 50 0 ·80 | | | N. 20 42 | |
| | δ Arietis - - | 4 | 3 2 25 ·70 | | | 19 7 | |
| | Moon I. U. | 4 ·1 | 3 24 11 ·44 | 156 ·50 | 74 ·06 | 23 27 49 ·4 | + |
| | Moon I. L. | - - | 3 55 47 ·56 | 159 ·39 | 74 ·79 | 25 27 19 ·8 | |
| | η Tauri - - | 3 | 3 37 55 ·43 | | | 23 36 | |
| | $\upsilon^1$ Tauri - - | 5 | 4 16 40 ·78 | | | N. 22 27 | |
| 20 | η Tauri - - | 3 | 3 37 55 ·42 | | | N. 23 36 | |
| | $\upsilon^1$ Tauri - - | 5 | 4 16 40 ·77 | | | 22 27 | |
| | Moon I. U. | 5 ·1 | 4 27 53 ·20 | 161 ·36 | 75 ·29 | 26 59 34 ·8 | + |
| | Moon I. L. | - - | 5 0 15 ·30 | 162 ·09 | 75 ·49 | 28 3 11 ·0 | |
| | ι Tauri - - | 4.5 | 4 53 29 ·09 | | | 21 21 | |
| | β Tauri - - | 2 | 5 16 7 ·78 | | | N. 28 28 | |
| 21 | ι Tauri - - | 4.5 | 4 53 29 ·07 | | | N. 21 21 | |
| | β Tauri - - | 2 | 5 16 7 ·76 | | | 28 28 | |
| | Moon I. U. | 6 ·1 | 5 32 37 ·78 | 161 ·40 | 75 ·33 | 28 37 33 ·8 | + |
| | Moon I. L. | - - | 6 4 43 ·17 | 159 ·25 | 74 ·81 | 28 43 2 ·2 | − |
| | C Tauri - - | 4.5 | 5 43 13 ·40 | | | 27 34 | |
| | κ Aurigæ - | 4 | 6 5 8 ·14 | | | N. 29 33 | |
| 22 | C Tauri - - | 4.5 | 5 43 13 ·38 | | | N. 27 34 | |
| | κ Aurigæ - | 4 | 6 5 8 ·13 | | | 29 33 | |
| | Moon I. U. | 7 ·2 | 6 36 14 ·73 | 155 ·80 | 73 ·95 | 28 20 44 ·1 | − |
| | Moon I. L. | - - | 7 6 58 ·22 | 151 ·30 | 72 ·82 | 27 32 28 ·6 | − |
| | δ Geminor. | 3.4 | 7 10 31 ·58 | | | 22 16 | |
| | $\alpha^2$ Geminor. | 3 | 7 24 20 ·80 | | | N. 32 14 | |
| 23 | δ Geminor. | 3.4 | 7 10 31 ·56 | | | N. 22 16 | |
| | $\alpha^2$ Geminor. | 3 | 7 24 20 ·79 | | | N. 32 14 | |

| ate. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 839. | | | h m s | s | s | ° ′ ″ | ″ |
| r. 23 | Moon I. U. | 8 ·2 | 7 36 43 ·12 | 146 ·10 | 71 ·49 | N.26 20 34 ·2 | —414 ·4 |
| | Moon I. L. | - - | 8 5 23 ·08 | 140 ·54 | 70 ·04 | 24 47 36 ·7 | 512 ·9 |
| | 6 Cancri - - | 5.6 | 7 53 38 ·51 | | | 28 14 | |
| | θ Cancri - - | 5.6 | 8 22 26 ·22 | | | N.18 38 | |
| 24 | 6 Cancri - - | 5.6 | 7 53 38 ·49 | | | N.28 14 | |
| | θ Cancri - - | 5.6 | 8 22 26 ·20 | | | 18 38 | |
| | Moon I. U. | 9 ·3 | 8 32 55 ·80 | 134 ·94 | 68 ·56 | 22 56 17 ·2 | —598 ·1 |
| | Moon I. L. | - - | 8 59 22 ·52 | 129 ·57 | 67 ·11 | 20 49 14 ·7 | 670 ·2 |
| | ξ Cancri - - | 5.6 | 9 0 7 ·46 | | | 22 42 | |
| | q Cancri - - | 6 | 9 10 0 ·98 | | | N.18 23 | |
| 25 | ξ Cancri - - | 5.6 | 9 0 7 ·45 | | | N.22 42 | |
| | q Cancri - - | 6 | 9 10 0 ·97 | | | 18 23 | |
| | Moon I. U. | 10 ·3 | 9 24 47 ·13 | 124 ·61 | 65 ·74 | 18 29 1 ·1 | —730 ·2 |
| | Moon I. L. | - - | 9 49 15 ·38 | 120 ·19 | 64 ·50 | 15 57 56 ·1 | 778 ·9 |
| | ν Leonis - * | 5.6 | 9 49 35 ·39 | | | 13 13 | |
| | η Leonis - - | 3.4 | 9 58 35 ·00 | | | N.17 33 | |
| 26 | ν Leonis - * | 5.6 | 9 49 35 ·39 | | | N.13 13 | |
| | η Leonis - - | 3.4 | 9 58 34 ·99 | | | 17 33 | |
| | Moon I. U. | 11 ·3 | 10 12 54 ·26 | 116 ·39 | 63 ·41 | 13 18 9 ·6 | —817 ·3 |
| | Moon I. L. | - - | 10 35 51 ·49 | 113 ·26 | 62 ·49 | 10 31 38 ·1 | 846 ·5 |
| | ρ Leonis - * | 4 | 10 24 21 ·80 | | | 10 8 | |
| | l Leonis - * | 6 | 10 40 49 ·27 | | | N.11 24 | |
| 27 | ρ Leonis - * | 4 | 10 24 21 ·79 | | | N.10 8 | |
| | l Leonis - * | 6 | 10 40 49 ·27 | | | 11 24 | |
| | Moon I. U. | 12 ·3 | 10 58 15 ·16 | 110 ·80 | 61 ·76 | 7 40 9 ·2 | —867 ·0 |
| | Moon I. L. | - - | 11 20 13 ·34 | 109 ·01 | 61 ·22 | 4 45 21 ·9 | 879 ·6 |
| | σ Leonis - * | 4 | 11 12 51 ·86 | | | 6 55 | |
| | υ Leonis - - | 4.5 | 11 28 43 ·43 | | | N. 0 4 | |
| 28 | σ Leonis - * | 4 | 11 12 51 ·86 | | | N. 6 55 | |
| | υ Leonis - - | 4.5 | 11 28 43 ·43 | | | 0 4 | |
| | Moon I. U. | 13 ·4 | 11 41 54 ·20 | 107 ·90 | 60 ·89 | N. 1 48 50 ·1 | —884 ·6 |
| | Moon I. L. | - - | 12 3 25 ·69 | 107 ·45 | 60 ·75 | S. 1 7 58 ·4 | 882 ·4 |
| | o Virginis * | 4.5 | 11 57 2 ·68 | | | N. 9 38 | |
| | η Virginis - | 3.4 | 12 11 42 ·21 | | | N. 0 14 | |
| 29 | o Virginis * | 4.5 | 11 57 2 ·68 | | | N. 9 38 | |
| | η Virginis - | 3.4 | 12 11 42 ·22 | | | N. 0 14 | |
| | Moon I. U. | 14 ·4 | 12 24 55 ·68 | 107 ·65 | 60 ·81 | S. 4 3 37 ·9 | —873 ·0 |
| | ψ Virginis - | 5.6 | 12 46 1 ·39 | | | 8 40 | |
| | θ Virginis - | 4.5 | 13 1 39 ·40 | | | S. 4 41 | |
| 30 | ψ Virginis - | 5.6 | 12 46 1 ·40 | | | S. 8 40 | |
| | θ Virginis - | 4.5 | 13 1 39 ·40 | | | 4 41 | |
| | Moon II. L. | - - | 12 48 33 ·93 | 108 ·53 | 61 ·05 | 6 56 43 ·2 | —856 ·7 |
| | *Moon II. U.* | *15 ·4* | 13 10 24 ·57 | 110 ·01 | 61 ·49 | S. 9 45 [illegible] | —833 ·2 |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R.A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. |
|---|---|---|---|---|---|---|
| 1839. | | | h m s | s | s | ° ′ ″ |
| Mar. 30 | α Virginis - | 1 | 13 16 45 ·20 | | | S. 10 19 |
| | O Virginis - | 6 | 13 37 23 ·80 | | | 11 37 |
| 31 | α Virginis - | 1 | 13 16 45 ·21 | | | S. 10 19 |
| | O Virginis - | 6 | 13 37 23 ·81 | | | 11 37 |
| | Moon II. L. | - - | 13 32 36 ·41 | 112 ·06 | 62 ·09 | 12 29 30 ·5 |
| | Moon II. U. | 16 ·5 | 13 55 16 ·34 | 114 ·68 | 62 ·85 | 15 6 14 ·6 |
| | λ Virginis - | 4 | 14 10 26 ·67 | | | S. 12 38 |
| Apr. 1 | λ Virginis - | 4 | 14 10 26 ·68 | | | S. 12 38 |
| | Moon II. L. | - - | 14 18 30 ·74 | 117 ·80 | 63 ·76 | 17 34 27 ·3 |
| | Moon II. U. | 17 ·5 | 14 42 25 ·34 | 121 ·37 | 64 ·78 | 19 52 28 ·8 |
| | 20 Libræ - - | 3.4 | 14 54 41 ·99 | | | 24 39 |
| | ι Libræ - - | 5.6 | 15 3 5 ·32 | | | S. 19 11 |
| 2 | 20 Libræ - - | 3.4 | 14 54 42 ·01 | | | S. 24 39 |
| | ι Libræ - - | 5.6 | 15 3 5 ·34 | | | 19 11 |
| | Moon II. L. | - - | 15 7 4 ·86 | 125 ·27 | 65 ·89 | 21 58 34 · |
| | Moon II. U. | 18 ·5 | 15 32 32 ·72 | 129 ·40 | 67 ·04 | 23 50 55 · |
| | δ Scorpii - | 3 | 15 50 51 ·31 | | | 22 9 |
| | σ Scorpii - | 4 | 16 11 26 ·64 | | | S. 25 12 |
| 3 | δ Scorpii - | 3 | 15 50 51 ·34 | | | S. 22 9 |
| | σ Scorpii - | 4 | 16 11 26 ·67 | | | 25 12 |
| | Moon II. L. | - - | 15 58 50 ·59 | 133 ·58 | 68 ·21 | 25 27 37 |
| | Moon II. U. | 19 ·6 | 16 25 57 ·94 | 137 ·61 | 69 ·31 | 26 46 47 |
| | 25 Scorpii - | 6 | 16 37 2 ·63 | | | 25 14 |
| | A Ophiuchi | 4.5 | 17 5 29 ·05 | | | S. 26 22 |
| 4 | 25 Scorpii - | 6 | 16 37 2 ·66 | | | S. 25 14 |
| | A Ophiuchi | 4.5 | 17 5 29 ·08 | | | 26 22 |
| | Moon II. L. | - - | 16 53 51 ·82 | 141 ·29 | 70 ·31 | 27 46 36 |
| | Moon II. U. | 20 ·6 | 17 22 26 ·65 | 144 ·40 | 71 ·15 | 28 25 20 |
| | $\gamma^2$ Sagittarii | 4 | 17 55 29 ·72 | | | 30 25 |
| | δ Sagittarii | 3.4 | 18 10 42 ·68 | | | S. 29 53 |
| 5 | $\gamma^2$ Sagittarii | 4 | 17 55 29 ·76 | | | S. 30 25 |
| | δ Sagittarii | 3.4 | 18 10 42 ·71 | | | 29 53 |
| | Moon II. L. | - - | 17 51 34 ·34 | 146 ·74 | 71 ·78 | 28 41 33 |
| | Moon II. U. | 21 ·6 | 18 21 4 ·84 | 148 ·19 | 72 ·18 | 28 34 8 |
| | σ Sagittarii | 3 | 18 45 18 ·09 | | | 26 29 |
| | τ Sagittarii | 4 | 18 56 54 ·42 | | | S. 27 54 |
| 6 | σ Sagittarii | 3 | 18 45 18 ·12 | | | S. 26 29 |
| | τ Sagittarii | 4 | 18 56 54 ·45 | | | 27 54 |
| | Moon II. L. | - - | 18 50 47 ·01 | 148 ·68 | 72 ·34 | 28 2 21 |
| | Moon II. U. | 22 ·7 | 19 20 29 ·57 | 148 ·27 | 72 ·24 | 27 5 59 |
| | 57 Sagittarii | 5.6 | 19 42 51 ·21 | | | 19 27 |
| | c Sagittarii | 4.5 | 19 52 45 ·98 | | | S. 28 9 |

| | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 39. | | | h m s | s | s | ° ′ ″ | ″ |
| 7 | 57 Sagittarii | 5.6 | 19 42 51 ·24 | | | S. 19 27 | |
| | c Sagittarii | 4.5 | 19 52 46 ·01 | | | 28 9 | |
| | Moon II. L. | - - | 19 50 2 ·40 | 147 ·08 | 71 ·95 | 25 45 17 ·4 | + 463 ·3 |
| | Moon II. U. | 23 ·7 | 20 19 17 ·31 | 145 ·32 | 71 ·50 | 24 0 59 ·2 | 578 ·7 |
| | ψ Capricorni | 4.5 | 20 36 34 ·10 | | | 25 51 | |
| | η Capricorni | 5 | 20 55 14 ·72 | | | S. 20 29 | |
| 8 | ψ Capricorni | 4.5 | 20 36 34 ·11 | | | S. 25 51 | |
| | η Capricorni | 5 | 20 55 14 ·74 | | | 20 29 | |
| | Moon II. L. | - - | 20 48 8 ·78 | 143 ·22 | 70 ·95 | 21 54 15 ·0 | + 687 ·3 |
| | Moon II. U. | 24 ·7 | 21 16 34 ·22 | 141 ·03 | 70 ·36 | 19 26 37 ·5 | 787 ·3 |
| | δ Capricorni | 3.4 | 21 38 9 ·12 | | | 16 51 | |
| | ι Aquarii - | 4.5 | 21 57 44 ·43 | | | S. 14 39 | |
| 9 | Moon II. L. | - - | 21 44 33 ·96 | 138 ·98 | 69 ·80 | S. 16 40 0 ·2 | + 877 ·1 |
| | Moon II. U. | 25 ·8 | 22 12 11 ·05 | 137 ·28 | 69 ·33 | 13 36 34 ·6 | 955 ·2 |
| 10 | Moon II. L. | - - | 22 39 30 ·81 | 136 ·11 | 68 ·98 | S. 10 18 48 ·4 | + 1020 ·3 |
| | Moon II. U. | 26 ·8 | 23 6 40 ·36 | 135 ·60 | 68 ·80 | 6 49 25 ·6 | 1070 ·9 |
| 11 | Moon II. L. | - - | 23 33 48 ·26 | 135 ·85 | 68 ·82 | S. 3 11 30 ·0 | + 1105 ·6 |
| | Moon II. U. | 27 ·8 | 0 1 3 ·97 | 136 ·92 | 69 ·05 | N. 0 31 40 ·2 | 1123 ·1 |
| 12 | Moon II. L. | - - | 0 28 37 ·60 | 138 ·83 | 69 ·51 | N. 4 16 29 ·0 | + 1121 ·8 |
| | Moon II. U. | 28 ·9 | 0 56 39 ·19 | 141 ·57 | 70 ·19 | 7 59 2 ·4 | 1100 ·4 |
| 13 | Moon II. L. | - - | 1 25 18 ·23 | 145 ·06 | 71 ·05 | N. 11 35 13 ·4 | + 1057 ·9 |
| 14 | Moon I. U. | 0 ·5 | 1 52 18 ·80 | 148 ·97 | 72 ·07 | N. 15 0 45 ·4 | + 993 ·7 |
| | Moon I. L. | - - | 2 22 32 ·88 | 153 ·42 | 73 ·18 | 18 11 17 ·4 | 908 ·0 |
| 15 | Moon I. U. | 1 ·6 | 2 53 41 ·12 | 157 ·94 | 74 ·30 | N. 21 2 35 ·2 | + 801 ·6 |
| | Moon I. L. | - - | 3 25 41 ·90 | 162 ·10 | 75 ·32 | 23 30 41 ·8 | 676 ·6 |
| 16 | Moon I. U. | 2 ·6 | 3 58 28 ·22 | 165 ·45 | 76 ·15 | N. 25 32 12 ·3 | + 536 ·2 |
| | Moon I. L. | - - | 4 31 47 ·62 | 167 ·53 | 76 ·67 | 27 4 27 ·8 | 385 ·0 |
| 17 | Moon I. U. | 3 ·6 | 5 5 22 ·70 | 168 ·01 | 76 ·80 | N. 28 5 49 ·7 | + 228 ·3 |
| | Moon I. L. | - - | 5 38 52 ·94 | 166 ·71 | 76 ·51 | 28 35 47 ·8 | + 72 ·0 |
| 18 | β Tauri - - | 2 | 5 16 7 ·34 | | | N. 28 28 | |
| | C Tauri - - | 4.5 | 5 43 12 ·95 | | | 27 34 | |
| | Moon I. U. | 4 ·7 | 6 11 57 ·05 | 163 ·69 | 75 ·79 | 28 35 0 ·3 | — 78 ·4 |
| | Moon I. L. | - - | 6 44 15 ·63 | 159 ·19 | 74 ·71 | 28 5 6 ·6 | 218 ·4 |
| | ε Geminor. | 3 | 6 34 2 ·18 | | | 25 17 | |
| | τ Geminor. | 5 | 7 0 54 ·03 | | | N. 30 30 | |
| 19 | ε Geminor. | 3 | 6 34 2 ·17 | | | N. 25 17 | |
| | τ Geminor. | 5 | 7 0 54 ·01 | | | 30 30 | |
| | *Moon I. U.* | *5 ·7* | 7 15 33 ·24 | 153 ·61 | 73 ·35 | N. 27 8 32 ·3 | — 344 ·8 |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R.A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Decl. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 1839. | | | h m s | s | s | ° ′ ″ | |
| Apr. 19 | Moon I. L. | - - | 7 45 39 ·66 | 147 ·40 | 71 ·80 | N. 25 48 12 ·7 | [illegible] |
| | β Geminor. | 2 | 7 35 28 ·50 | | | 28 25 | |
| | μ¹ Cancri - - | 6 | 7 56 46 ·71 | | | N. 23 5 | |
| 20 | β Geminor. | 2 | 7 35 28 ·49 | | | N. 28 25 | |
| | μ¹ Cancri - - | 6 | 7 56 46 ·69 | | | 23 5 | |
| | Moon I. U. | 6 ·8 | 8 14 29 ·92 | 140 ·98 | 70 ·16 | 24 7 14 ·3 | [illegible] |
| | Moon I. L. | - - | 8 42 3 ·77 | 134 ·71 | 68 ·53 | 22 8 43 ·2 | [illegible] |
| | δ Cancri - - | 4.5 | 8 35 33 ·03 | | | 18 45 | |
| | ξ Cancri - - | 5.6 | 9 0 7 ·10 | | | N. 22 42 | |
| 21 | δ Cancri - - | 4.5 | 8 35 33 ·02 | | | N. 18 45 | |
| | ξ Cancri - - | 5.6 | 9 0 7 ·08 | | | 22 42 | |
| | Moon I. U. | 7 ·8 | 9 8 24 ·64 | 128 ·85 | 66 ·96 | 19 55 34 ·6 | [illegible] |
| | Moon I. L. | - - | 9 33 38 ·55 | 123 ·58 | 65 ·53 | 17 30 27 ·7 | [illegible] |
| | λ Leonis - - | 4.5 | 9 22 33 ·20 | | | 23 40 | |
| | ψ Leonis - - | 6 | 9 34 58 ·86 | | | N. 14 45 | |
| 22 | λ Leonis - - | 4.5 | 9 22 33 ·18 | | | N. 23 40 | |
| | ψ Leonis - - | 6 | 9 34 58 ·85 | | | 14 45 | |
| | Moon I. U. | 8 ·8 | 9 57 53 ·22 | 118 ·99 | 64 ·25 | 14 55 44 ·5 | [illegible] |
| | Moon I. L. | - - | 10 21 17 ·28 | 115 ·15 | 63 ·15 | 12 13 31 ·2 | [illegible] |
| | γ Leonis - - | 2 | 10 11 7 ·00 | | | 20 39 | |
| | ρ Leonis - * | 4 | 10 24 21 ·58 | | | N. 10 8 | |
| 23 | γ Leonis - - | 2 | 10 11 6 ·99 | | | N. 20 39 | |
| | ρ Leonis - * | 4 | 10 24 21 ·57 | | | 10 8 | |
| | Moon I. U. | 9 ·9 | 10 43 59 ·78 | 112 ·06 | 62 ·25 | 9 25 38 ·1 | [illegible] |
| | Moon I. L. | - - | 11 6 9 ·83 | 109 ·74 | 61 ·56 | 6 33 45 ·4 | [illegible] |
| | χ Leonis - * | 4.5 | 10 56 44 ·42 | | | 8 12 | |
| | τ Leonis - - | 4 | 11 19 41 ·45 | | | N. 3 45 | |
| 24 | χ Leonis - * | 4.5 | 10 56 44 ·41 | | | N. 8 12 | |
| | τ Leonis - - | 4 | 11 19 41 ·45 | | | 3 45 | |
| | Moon I. U. | 10 ·9 | 11 27 56 ·41 | 108 ·15 | 61 ·07 | 3 39 22 ·2 | [illegible] |
| | Moon I. L. | - - | 11 49 28 ·24 | 107 ·28 | 60 ·80 | 0 43 53 ·3 | [illegible] |
| | β Virginis - | 3.4 | 11 42 20 ·80 | | | 2 40 | |
| | o Virginis * | 4.5 | 11 57 2 ·66 | | | N. 9 38 | |
| 25 | β Virginis - | 3.4 | 11 42 20 ·79 | | | N. 2 40 | |
| | o Virginis * | 4.5 | 11 57 2 ·66 | | | N. 9 38 | |
| | Moon I. U. | 11 ·9 | 12 10 53 ·96 | 107 ·12 | 60 ·72 | S. 2 11 20 ·3 | [illegible] |
| | Moon I. L. | - - | 12 32 21 ·74 | 107 ·62 | 60 ·84 | 5 5 1 ·5 | [illegible] |
| | γ¹ Virginis - | 4 | 12 33 32 ·29 | | | 0 34 | |
| | ψ Virginis - | 5.6 | 12 46 1 ·50 | | | S. 8 40 | |
| 26 | γ¹ Virginis - | 4 | 12 33 32 ·29 | | | S. 0 34 | |
| | ψ Virginis - | 5.6 | 12 46 1 ·51 | | | 8 40 | |
| | Moon I. U. | 12 ·9 | 12 53 59 ·53 | 108 ·78 | 61 ·16 | 7 55 48 ·3 | [illegible] |
| | Moon I. L. | - - | 13 15 55 ·01 | 110 ·57 | 61 ·65 | S. 10 42 17 ·[illegible] | [illegible] |

| e. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 9. | | | h m s | s | s | ° ′ ″ | ″ |
| 26 | α Virginis - | 1 | 13 16 45 ·39 | | | S. 10 19 | |
| 27 | α Virginis - | 1 | 13 16 45 ·39 | | | S. 10 19 | |
| | Moon I. U. | 14 ·0 | 13 38 15 ·48 | 112 ·94 | 62 ·32 | 13 23 2 ·3 | −786 ·8 |
| | Moon I. L. | - - | 14 1 7 ·71 | 115 ·85 | 63 ·13 | 15 56 28 ·4 | 746 ·2 |
| | λ Virginis - | 4 | 14 10 27 ·00 | | | S. 12 38 | |
| 28 | λ Virginis - | 4 | 14 10 27 ·01 | | | S. 12 38 | |
| | Moon II. U. | 15 ·0 | 14 26 46 ·05 | 119 ·42 | 64 ·09 | 18 20 56 ·8 | −697 ·0 |
| | $\alpha^2$ Libræ - - | 3 | 14 42 1 ·47 | | | 15 22 | |
| | 20 Libræ - - | 3.4 | 14 54 42 ·47 | | | S. 24 39 | |
| 29 | $\alpha^2$ Libræ - - | 3 | 14 42 1 ·48 | | | S. 15 22 | |
| | 20 Libræ - - | 3.4 | 14 54 42 ·48 | | | 24 39 | |
| | Moon II. L. | - - | 14 51 1 ·42 | 123 ·20 | 65 ·13 | 20 34 40 ·7 | −638 ·8 |
| | Moon II. U. | 16 ·0 | 15 16 3 ·95 | 127 ·25 | 66 ·24 | 22 35 49 ·3 | 571 ·0 |
| | χ Libræ - - | 5.6 | 15 30 49 ·05 | | | 23 17 | |
| | δ Scorpii - | 3 | 15 50 51 ·91 | | | S. 22 9 | |
| 30 | χ Libræ - - | 5.6 | 15 30 49 ·06 | | | S. 23 17 | |
| | δ Scorpii - | 3 | 15 50 51 ·93 | | | 22 9 | |
| | Moon II. L. | - - | 15 41 55 ·67 | 131 ·38 | 67 ·36 | 24 22 26 ·0 | −493 ·5 |
| | Moon II. U. | 17 ·1 | 16 8 36 ·61 | 135 ·41 | 68 ·46 | 25 52 34 ·2 | 406 ·3 |
| | α Scorpii - | 1 | 16 19 35 ·30 | | | 26 4 | |
| | τ Scorpii - | 3.4 | 16 25 54 ·82 | | | S. 27 52 | |
| 1 | α Scorpii - | 1 | 16 19 35 ·32 | | | S. 26 4 | |
| | τ Scorpii - | 3.4 | 16 25 54 ·84 | | | 27 52 | |
| | Moon II. L. | - - | 16 36 4 ·24 | 139 ·12 | 69 ·46 | 27 4 20 ·4 | −309 ·9 |
| | Moon II. U. | 18 ·1 | 17 4 13 ·32 | 142 ·28 | 70 ·33 | 27 55 59 ·0 | 205 ·3 |
| | *d* Ophiuchi | 5 | 17 17 7 ·24 | | | 29 43 | |
| | *p* Sagittarii | 5 | 17 37 28 ·10 | | | S. 27 46 | |
| 2 | *d* Ophiuchi | 5 | 17 17 7 ·27 | | | S. 29 43 | |
| | *p* Sagittarii | 5 | 17 37 28 ·13 | | | 27 46 | |
| | Moon II. L. | - - | 17 32 56 ·07 | 144 ·70 | 71 ·00 | 28 26 0 ·4 | − 93 ·9 |
| | Moon II. U. | 19 ·1 | 18 2 2 ·58 | 146 ·22 | 71 ·44 | 28 33 13 ·9 | + 22 ·3 |
| | φ Sagittarii | 4.5 | 18 35 38 ·02 | | | 27 9 | |
| | σ Sagittarii | 3 | 18 45 18 ·99 | | | S. 26 29 | |
| 3 | φ Sagittarii | 4.5 | 18 35 38 ·05 | | | S. 27 9 | |
| | σ Sagittarii | 3 | 18 45 19 ·02 | | | 26 29 | |
| | Moon II. L. | - - | 18 31 21 ·49 | 146 ·76 | 71 ·62 | 28 16 56 ·0 | +140 ·9 |
| | Moon II. U. | 20 ·2 | 19 0 41 ·18 | 146 ·36 | 71 ·56 | 27 36 51 ·1 | 259 ·7 |
| | $h^2$ Sagittarii | 4.5 | 19 26 56 ·32 | | | 25 14 | |
| | 59 Sagittarii | 5 | 19 47 5 ·56 | | | S. 27 35 | |
| 4 | $h^2$ Sagittarii | 4.5 | 19 26 56 ·35 | | | S. 25 14 | |
| | 59 Sagittarii | 5 | 19 47 5 ·60 | | | 27 35 | |
| | Moon II. L. | - - | 19 29 50 ·87 | 145 ·12 | 71 ·29 | S. 26 33 12 ·9 | +376 ·1 |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Decl. in 1 h. of Long. |
|---|---|---|---|---|---|---|---|
| 1839. | | | h m s | s | s | ° ′ ″ | |
| May 4 | Moon II. U. | 21·2 | 19 58 41·55 | 143·23 | 70·84 | S. 25 6 42·6 | + [illegible] |
| | π Capricorni | 5 | 20 18 7·62 | | | 18 44 | |
| | ψ Capricorni | 4.5 | 20 36 35·00 | | | S. 25 51 | |
| 5 | π Capricorni | 5 | 20 18 7·65 | | | S. 18 44 | |
| | ψ Capricorni | 4.5 | 20 36 35·04 | | | 25 51 | |
| | Moon II. L. | - - | 20 27 6·84 | 140·93 | 70·27 | 23 18 24·6 | + 5 |
| | Moon II. U. | 22·3 | 20 55 3·32 | 138·47 | 69·65 | 21 9 42·7 | 6 |
| | ζ Capricorni | 4 | 21 17 29·27 | | | 23 6 | |
| | δ Capricorni | 3.4 | 21 38 9·92 | | | S. 16 51 | |
| 6 | ζ Capricorni | 4 | 21 17 29·30 | | | S. 23 6 | |
| | δ Capricorni | 3.4 | 21 38 9·95 | | | 16 51 | |
| | Moon II. L. | - - | 21 22 30·48 | 136·09 | 69·03 | 18 42 15·5 | + 7 |
| | Moon II. U. | 23·3 | 21 49 30·61 | 134·00 | 68·48 | 15 57 52·6 | 8 |
| | θ Aquarii - | 4.5 | 22 8 20·89 | | | 8 35 | |
| | σ Aquarii - | 5 | 22 22 8·30 | | | S. 11 30 | |
| 7 | θ Aquarii - | 4.5 | 22 8 20·92 | | | S. 8 35 | |
| | σ Aquarii - | 5 | 22 22 8·33 | | | 11 30 | |
| | Moon II. L. | - - | 22 16 8·30 | 132·38 | 68·04 | 12 58 34·3 | + 9 |
| | Moon II. U. | 24·3 | 22 42 30·28 | 131·40 | 67·76 | 9 46 29·3 | 9 |
| | φ Aquarii - | 5 | 23 5 59·68 | | | S. 6 55 | |
| | $\kappa^1$ Piscium - | 5.6 | 23 18 41·35 | | | N. 0 23 | |
| 8 | Moon II. L. | - - | 23 8 44·72 | 131·15 | 67·67 | S. 6 23 56·6 | +10 |
| | Moon II. U. | 25·4 | 23 35 1·08 | 131·73 | 67·78 | S. 2 53 26·9 | 10 |
| 9 | Moon II. L. | - - | 0 1 29·77 | 133·20 | 68·14 | N. 0 42 14·0 | +10 |
| | Moon II. U. | 26·4 | 0 28 21·46 | 135·58 | 68·72 | 4 20 2·9 | 10 |
| 10 | Moon II. L. | - - | 0 55 47·30 | 138·88 | 69·54 | N. 7 56 36·6 | +10 |
| | Moon II. U. | 27·4 | 1 23 57·96 | 143·03 | 70·57 | 11 28 11·6 | 10 |
| 11 | Moon II. L. | - - | 1 53 2·84 | 147·89 | 71·77 | N. 14 50 44·9 | + 9 |
| | Moon II. U. | 28·5 | 2 23 9·29 | 153·24 | 73·08 | 17 59 57·6 | 9 |
| 12 | Moon II. L. | - - | 2 54 21·23 | 158·74 | 74·41 | N. 20 51 21·8 | + 8 |
| 13 | Moon I. U. | 0·2 | 3 24 6·50 | 163·73 | 75·66 | N. 23 20 34·7 | + 6 |
| | Moon I. L. | - - | 3 57 18·69 | 168·11 | 76·70 | 25 23 36·5 | 5 |
| 14 | Moon I. U. | 1·2 | 4 31 15·70 | 171·11 | 77·41 | N. 26 57 7·6 | + 3 |
| | Moon I. L. | - - | 5 5 38·04 | 172·26 | 77·68 | 27 58 52·6 | 2 |
| 15 | Moon I. U. | 2·3 | 5 40 1·87 | 171·33 | 77·46 | N. 28 27 53·1 | + |
| | Moon I. L. | - - | 6 14 1·90 | 168·33 | 76·77 | 28 24 33·5 | — |
| 16 | Moon I. U. | 3·3 | 6 47 14·93 | 163·57 | 75·64 | N. 27 50 35·0 | — 2 |
| | Moon I. L. | - - | 7 19 22·40 | 157·50 | 74·19 | N. 26 48 39·0 | — 3 |

| e. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R.A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 9. | | | h m s | s | s | ° ′ ″ | ″ |
| 17 | ι Geminor. | 4 | 7 15 43 ·91 | | | N.28 7 | |
| | β Geminor. | 2 | 7 35 28 ·15 | | | 28 25 | |
| | Moon I. U. | 4 ·4 | 7 50 12 ·00 | 150 ·69 | 72 ·51 | 25 22 3 ·8 | —488 ·6 |
| | Moon I. L. | - - | 8 19 37 ·91 | 143 ·63 | 70 ·75 | 23 34 23 ·7 | 585 ·0 |
| | λ Cancri - - | 6 | 8 10 57 ·75 | | | 24 31 | |
| | δ Cancri - - | 4.5 | 8 35 32 ·68 | | | N.18 45 | |
| 18 | λ Cancri - - | 6 | 8 10 57 ·74 | | | N.24 31 | |
| | δ Cancri - - | 4.5 | 8 35 32 ·67 | | | 18 45 | |
| | Moon I. U. | 5 ·4 | 8 47 39 ·87 | 136 ·76 | 68 ·99 | 21 29 11 ·0 | —664 ·3 |
| | Moon I. L. | - - | 9 14 21 ·94 | 130 ·36 | 67 ·32 | 19 9 42 ·4 | 728 ·0 |
| | q Cancri - - | 6 | 9 10 0 ·27 | | | 18 23 | |
| | λ Leonis - - | 4.5 | 9 22 32 ·83 | | | N.23 40 | |
| 19 | q Cancri - - | 6 | 9 10 0 ·26 | | | N.18 23 | |
| | λ Leonis - - | 4.5 | 9 22 32 ·82 | | | 23 40 | |
| | Moon I. U. | 6 ·4 | 9 39 51 ·21 | 124 ·64 | 65 ·80 | 16 38 54 ·9 | —777 ·8 |
| | Moon I. L. | - - | 10 4 16 ·51 | 119 ·71 | 64 ·45 | 13 59 23 ·2 | 815 ·7 |
| | α Leonis - * | 1 | 9 59 49 ·12 | | | 12 45 | |
| | γ Leonis - - | 2 | 10 11 6 ·67 | | | N.20 39 | |
| 20 | α Leonis - * | 1 | 9 59 49 ·11 | | | N.12 45 | |
| | γ Leonis - - | 2 | 10 11 6 ·66 | | | 20 39 | |
| | Moon I. U. | 7 ·5 | 10 27 47 ·61 | 115 ·61 | 63 ·31 | 11 13 19 ·4 | —843 ·4 |
| | Moon I. L. | - - | 10 50 34 ·59 | 112 ·36 | 62 ·39 | 8 22 38 ·0 | 862 ·2 |
| | l Leonis - * | 6 | 10 40 48 ·80 | | | 11 24 | |
| | χ Leonis - * | 4.5 | 10 56 44 ·16 | | | N. 8 12 | |
| 21 | l Leonis - * | 6 | 10 40 48 ·79 | | | N.11 24 | |
| | χ Leonis - * | 4.5 | 10 56 44 ·16 | | | 8 12 | |
| | Moon I. U. | 8 ·5 | 11 12 47 ·52 | 109 ·93 | 61 ·69 | 5 28 58 ·2 | —873 ·3 |
| | Moon I. L. | - - | 11 34 36 ·20 | 108 ·31 | 61 ·21 | 2 33 47 ·1 | 877 ·5 |
| | υ Leonis - - | 4.5 | 11 28 43 ·14 | | | 0 4 | |
| | β Virginis - | 3.4 | 11 42 20 ·61 | | | N. 2 40 | |
| 22 | υ Leonis - - | 4.5 | 11 28 43 ·13 | | | N. 0 4 | |
| | β Virginis - | 3.4 | 11 42 20 ·60 | | | N. 2 40 | |
| | Moon I. U. | 9 ·5 | 11 56 10 ·15 | 107 ·47 | 60 ·95 | S. 0 21 35 ·8 | —875 ·3 |
| | Moon I. L. | - - | 12 17 38 ·59 | 107 ·39 | 60 ·91 | S. 3 15 55 ·7 | 867 ·0 |
| | η Virginis - | 3.4 | 12 11 42 ·10 | | | N. 0 14 | |
| | q Virginis - | 5.6 | 12 25 30 ·35 | | | S. 8 34 | |
| 23 | η Virginis - | 3.4 | 12 11 42 ·09 | | | N. 0 14 | |
| | q Virginis - | 5.6 | 12 25 30 ·35 | | | S. 8 34 | |
| | Moon I. U. | 10 ·6 | 12 39 10 ·40 | 108 ·03 | 61 ·06 | 6 7 58 ·9 | —852 ·5 |
| | Moon I. L. | - - | 13 0 54 ·08 | 109 ·36 | 61 ·42 | 8 56 30 ·2 | —831 ·7 |
| | θ Virginis - | 4.5 | 13 1 39 ·52 | | | 4 41 | |
| | α Virginis - | 1 | 13 16 45 ·39 | | | S.10 19 | |
| 24 | θ Virginis - | 4.5 | 13 1 39 ·51 | | | S. 4 41 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 1839. | | | h m s | s | s | ° ′ ″ | ″ |
| May 24 | α Virginis - | 1 | 13 16 45 ·39 | | | S. 10 19 | |
| | Moon I. U. | 11 ·6 | 13 22 57 ·78 | 111 ·36 | 61 ·97 | 11 40 11 ·6 | −804″ |
| | Moon I. L. | - - | 13 45 29 ·29 | 113 ·99 | 62 ·69 | 14 17 38 ·1 | 769 |
| | x Virginis - | 5.6 | 13 41 10 ·19 | | | S. 17 20 | |
| 25 | x Virginis - | 5.6 | 13 41 10 ·19 | | | S. 17 20 | |
| | Moon I. U. | 12 ·6 | 14 8 35 ·78 | 117 ·18 | 63 ·55 | 16 47 18 ·3 | −726 |
| | Moon I. L. | - - | 14 32 23 ·53 | 120 ·86 | 64 ·55 | 19 7 32 ·0 | 674 |
| | $\alpha^2$ Libræ - - | 3 | 14 42 1 ·68 | | | S. 15 22 | |
| 26 | $\alpha^2$ Libræ - - | 3 | 14 42 1 ·68 | | | S. 15 22 | |
| | Moon I. U. | 13 ·6 | 14 56 57 ·79 | 124 ·91 | 65 ·63 | 21 16 30 ·0 | −613 |
| | Moon I. L. | - - | 15 22 22 ·25 | 129 ·19 | 66 ·77 | 23 12 16 ·6 | 542 |
| | χ Libræ - - | 5.6 | 15 30 49 ·40 | | | 23 17 | |
| | b Scorpii - | 5 | 15 41 21 ·37 | | | S. 25 15 | |
| 27 | χ Libræ - - | 5.6 | 15 30 49 ·41 | | | S. 23 17 | |
| | b Scorpii - | 5 | 15 41 21 ·38 | | | 25 15 | |
| | Moon I. U. | 14 ·7 | 15 48 38 ·50 | 133 ·50 | 67 ·90 | 24 52 50 ·4 | −461 |
| | Moon I. L. | - - | 16 15 45 ·57 | 137 ·63 | 68 ·97 | 26 16 8 ·9 | 370 |
| | σ Scorpii - | 4 | 16 11 27 ·79 | | | 25 12 | |
| | α Scorpii - | 1 | 16 19 35 ·79 | | | S. 26 4 | |
| 28 | σ Scorpii - | 4 | 16 11 27 ·81 | | | S. 25 12 | |
| | α Scorpii - | 1 | 16 19 35 ·80 | | | 26 4 | |
| | Moon II. U. | 15 ·7 | 16 45 59 ·62 | 141 ·45 | 69 ·92 | 27 20 14 ·6 | −269 |
| | A Ophiuchi - | 4.5 | 17 5 30 ·46 | | | 26 22 | |
| | θ Ophiuchi - | 3.4 | 17 12 10 ·63 | | | S. 24 50 | |
| 29 | A Ophiuchi - | 4.5 | 17 5 30 ·48 | | | S. 26 22 | |
| | θ Ophiuchi - | 3.4 | 17 12 10 ·65 | | | 24 50 | |
| | Moon II. L. | - - | 17 14 35 ·60 | 144 ·40 | 70 ·70 | 28 3 21 ·3 | −160 |
| | Moon II. U. | 16 ·8 | 17 43 41 ·70 | 146 ·44 | 71 ·25 | 28 24 2 ·9 | − 45 |
| | δ Sagittarii | 3.4 | 18 10 44 ·38 | | | 29 53 | |
| | λ Sagittarii | 4 | 18 18 5 ·12 | | | S. 25 30 | |
| 30 | δ Sagittarii | 3.4 | 18 10 44 ·41 | | | S. 29 53 | |
| | λ Sagittarii | 4 | 18 18 5 ·15 | | | 25 30 | |
| | Moon II. L. | - - | 18 13 6 ·03 | 147 ·43 | 71 ·53 | 28 21 19 ·2 | + 73 |
| | Moon II. U. | 17 ·8 | 18 42 35 ·73 | 147 ·34 | 71 ·55 | 27 54 40 ·8 | 193 |
| | τ Sagittarii | 4 | 18 56 56 ·21 | | | 27 54 | |
| | $h^2$ Sagittarii | 4.5 | 19 26 57 ·18 | | | S. 25 14 | |
| 31 | τ Sagittarii | 4 | 18 56 56 ·24 | | | S. 27 54 | |
| | $h^2$ Sagittarii | 4.5 | 19 26 57 ·21 | | | 25 14 | |
| | Moon II. L. | - - | 19 11 58 ·11 | 146 ·23 | 71 ·31 | 27 4 12 ·5 | +311″ |
| | Moon II. U. | 18 ·8 | 19 41 1 ·95 | 144 ·28 | 70 ·86 | 25 50 32 ·6 | +424″ |
| | c Sagittarii | 4.5 | 19 52 47 ·86 | | | 28 9 | |
| | π Capricorni | 5 | 20 18 8 ·49 | | | S. 18 44 | |

| ate. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 39. | | | h m s | s | s | ° ′ ″ | ″ |
| e 1 | c Sagittarii | 4.5 | 19 52 47 ·89 | | | S. 28 9 | |
| | π Capricorni | 5 | 20 18 8 ·52 | | | 18 44 | |
| | Moon II. L. | - - | 20 9 38 ·47 | 141 ·73 | 70 ·25 | 24 14 46 ·1 | + 531 ·8 |
| | Moon II. U. | 19 ·9 | 20 37 42 ·06 | 138 ·84 | 69 ·54 | 22 18 22 ·4 | 630 ·7 |
| | s Capricorni | 5 | 21 6 52 ·14 | | | 15 50 | |
| | ζ Capricorni | 4 | 21 17 30 ·19 | | | S. 23 6 | |
| 2 | s Capricorni | 5 | 21 6 52 ·17 | | | S. 15 50 | |
| | ζ Capricorni | 4 | 21 17 30 ·23 | | | 23 6 | |
| | Moon II. L. | - - | 21 5 10 ·31 | 135 ·88 | 68 ·81 | 20 3 6 ·5 | + 720 ·3 |
| | Moon II. U. | 20 ·9 | 21 32 3 ·96 | 133 ·11 | 68 ·10 | 17 30 54 ·3 | 800 ·0 |
| | μ Capricorni | 5 | 21 44 32 ·66 | | | 14 18 | |
| | ι Aquarii - | 4.5 | 21 57 46 ·11 | | | S. 14 39 | |
| 3 | μ Capricorni | 5 | 21 44 32 ·69 | | | S. 14 18 | |
| | ι Aquarii - | 4.5 | 21 57 46 ·14 | | | 14 39 | |
| | Moon II. L. | - - | 21 58 26 ·43 | 130 ·72 | 67 ·48 | 14 43 47 ·9 | + 869 ·3 |
| | Moon II. U. | 21 ·9 | 22 24 23 ·41 | 128 ·89 | 67 ·00 | 11 43 53 ·8 | 927 ·9 |
| | λ Aquarii - | 4 | 22 44 14 ·36 | | | 8 26 | |
| | φ Aquarii - | 5 | 23 6 0 ·51 | | | S. 6 55 | |
| 4 | λ Aquarii - | 4 | 22 44 14 ·40 | | | S. 8 26 | |
| | φ Aquarii - | 5 | 23 6 0 ·54 | | | 6 55 | |
| | Moon II. L. | - - | 22 50 2 ·41 | 127 ·74 | 66 ·70 | 8 33 21 ·3 | + 975 ·7 |
| | Moon II. U. | 23 ·0 | 23 15 32 ·34 | 127 ·39 | 66 ·60 | 5 14 23 ·2 | 1012 ·1 |
| | n Piscium - | 5.6 | 23 39 40 ·69 | | | S. 3 39 | |
| | ω Piscium * | 4.5 | 23 51 3 ·84 | | | N. 5 58 | |
| 5 | n Piscium - | 5.6 | 23 39 40 ·73 | | | S. 3 39 | |
| | ω Piscium * | 4.5 | 23 51 3 ·87 | | | N. 5 58 | |
| | Moon II. L. | - - | 23 41 3 ·15 | 127 ·90 | 66 ·73 | S. 1 49 18 ·4 | +1036 ·7 |
| | Moon II. U. | 24 ·0 | 0 6 45 ·55 | 129 ·33 | 67 ·09 | N. 1 39 25 ·8 | 1048 ·5 |
| | δ Piscium * | 5 | 0 40 20 ·96 | | | N. 6 42 | |
| 6 | δ Piscium * | 5 | 0 40 20 ·99 | | | N. 6 42 | |
| | Moon II. L. | - - | 0 32 50 ·81 | 131 ·71 | 67 ·70 | 5 9 9 ·9 | +1046 ·5 |
| | Moon II. U. | 25 ·0 | 0 59 30 ·30 | 135 ·03 | 68 ·55 | 8 36 59 ·7 | 1029 ·2 |
| | η Piscium - | 4 | 1 22 54 ·33 | | | 14 31 | |
| | o Piscium * | 5 | 1 36 54 ·46 | | | N. 8 21 | |
| 7 | Moon II. L. | - - | 1 26 55 ·18 | 139 ·26 | 69 ·62 | N. 11 59 43 ·0 | + 995 ·0 |
| | Moon II. U. | 26 ·1 | 1 55 15 ·72 | 144 ·28 | 70 ·87 | 15 13 46 ·7 | 942 ·4 |
| 8 | Moon II. L. | - - | 2 24 40 ·28 | 149 ·90 | 72 ·26 | N. 18 15 20 ·3 | + 869 ·8 |
| | Moon II. U. | 27 ·1 | 2 55 14 ·28 | 155 ·79 | 73 ·69 | 21 0 18 ·5 | 776 ·3 |
| 9 | Moon II. L. | - - | 3 26 58 ·66 | 161 ·54 | 75 ·07 | N. 23 24 30 ·5 | + 662 ·2 |
| | Moon II. U. | 28 ·1 | 3 59 48 ·49 | 166 ·60 | 76 ·26 | 25 23 54 ·8 | 528 ·8 |
| 10 | Moon II. L. | - - | 4 33 31 ·95 | 170 ·38 | 77 ·15 | N. 26 55 0 ·3 | + 379 ·7 |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Va ☾'s in 1 of L |
|---|---|---|---|---|---|---|---|
| 1839. | | | h m s | s | s | ° ′ ″ | |
| June 10 | Moon II. U. | 29·2 | 5 7 50·53 | 172·36 | 77·61 | N.27 55 6·1 | +2 |
| 11 | Moon I. L. | - - | 5 39 45·18 | 172·27 | 77·58 | N.28 22 43·6 | + |
| 12 | Moon I. U. | 0·9 | 6 14 1·15 | 170·01 | 77·05 | N.28 17 48·2 | —1 |
| | Moon I. L. | - - | 6 47 37·78 | 165·78 | 76·04 | 27 41 37·5 | 2 |
| 13 | Moon I. U. | 2·0 | 7 20 13·99 | 160·04 | 74·67 | N.26 36 39·0 | —3 |
| | Moon I. L. | - - | 7 51 34·89 | 153·34 | 73·04 | 25 6 9·9 | 5 |
| 14 | Moon I. U. | 3·0 | 8 21 32·38 | 146·23 | 71·29 | N.23 13 50·8 | —6 |
| | Moon I. L. | - - | 8 50 4·65 | 139·20 | 69·50 | 21 3 26·9 | 6 |
| 15 | δ Cancri - - | 4.5 | 8 35 32·48 | | | N.18 45 | |
| | ξ Cancri - - | 5.6 | 9 0 6·49 | | | 22 42 | |
| | Moon I. U. | 4·1 | 9 17 14·73 | 132·58 | 67·81 | 18 38 32·5 | —7 |
| | Moon I. L. | - - | 9 43 9·20 | 126·62 | 66·24 | 16 2 22·0 | 8 |
| | ψ Leonis - - | 6 | 9 34 58·27 | | | 14 45 | |
| | α Leonis - * | 1 | 9 59 48·87 | | | N.12 45 | |
| 16 | ψ Leonis - - | 6 | 9 34 58·27 | | | N.14 45 | |
| | α Leonis - * | 1 | 9 59 48·86 | | | 12 45 | |
| | Moon I. U. | 5·1 | 10 7 56·80 | 121·45 | 64·86 | 13 17 44·7 | —8 |
| | Moon I. L. | - - | 10 31 47·37 | 117·13 | 63·69 | 10 27 6·5 | 8 |
| | ρ Leonis - * | 4 | 10 24 21·01 | | | 10 8 | |
| | l Leonis - * | 6 | 10 40 48·54 | | | N.11 24 | |
| 17 | ρ Leonis - * | 4 | 10 24 21·01 | | | N.10 8 | |
| | l Leonis - * | 6 | 10 40 48·53 | | | 11 24 | |
| | Moon I. U. | 6·1 | 10 54 51·33 | 113·68 | 62·74 | 7 32 31·5 | —8 |
| | Moon I. L. | - - | 11 17 19·05 | 111·09 | 62·02 | 4 35 45·6 | 8 |
| | σ Leonis - * | 4 | 11 12 51·25 | | | 6 55 | |
| | υ Leonis - - | 4.5 | 11 28 42·89 | | | N. 0 4 | |
| 18 | σ Leonis - * | 4 | 11 12 51·24 | | | N. 6 55 | |
| | υ Leonis - - | 4.5 | 11 28 42·89 | | | 0 4 | |
| | Moon I. U. | 7·1 | 11 39 20·77 | 109·34 | 61·53 | N. 1 38 21·7 | —88 |
| | Moon I. L. | - - | 12 1 6·42 | 108·40 | 61·27 | S. 1 18 19·5 | 8 |
| | b Virginis * | 5.6 | 11 51 43·64 | | | N. 4 33 | |
| | η Virginis - | 3.4 | 12 11 41·88 | | | N. 0 14 | |
| 19 | b Virginis * | 5.6 | 11 51 43·63 | | | N. 4 33 | |
| | η Virginis - | 3.4 | 12 11 41·87 | | | N. 0 14 | |
| | Moon I. U. | 8·2 | 12 22 45·62 | 108·26 | 61·23 | S. 4 13 4·4 | — |
| | Moon I. L. | - - | 12 44 27·63 | 108·87 | 61·41 | 7 4 39·9 | |
| | ψ Virginis - | 5.6 | 12 46 1·25 | | | S. 8 40 | |
| 20 | ψ Virginis - | 5.6 | 12 46 1·24 | | | S. 8 40 | |
| | Moon I. U. | 9·2 | 13 6 21·40 | 110·21 | 61·79 | 9 51 54·6 | — |
| | Moon I. L. | - - | 13 28 35·54 | 112·26 | 62·35 | S.12 33 34·9 | —7 |

| te. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 9. | | | h m s | s | s | ° ′ ″ | ″ |
| 20 | α Virginis - | 1 | 13 16 45 ·24 | | | S. 10 19 | |
| | O Virginis - | 6 | 13 37 23 ·98 | | | 11 37 | |
| 21 | α Virginis - | 1 | 13 16 45 ·23 | | | S. 10 19 | |
| | O Virginis - | 6 | 13 37 23 ·98 | | | 11 37 | |
| | Moon I. U. | 10 ·2 | 13 51 18 ·15 | 114 ·95 | 63 ·10 | 15 8 18 ·9 | −753 ·9 |
| | Moon I. L. | - - | 14 14 36 ·84 | 118 ·26 | 64 ·00 | 17 34 38 ·6 | 708 ·0 |
| | λ Virginis - | 4 | 14 10 27 ·07 | | | S. 12 38 | |
| 22 | λ Virginis - | 4 | 14 10 27 ·07 | | | S. 12 38 | |
| | Moon I. U. | 11 ·3 | 14 38 38 ·32 | 122 ·07 | 65 ·03 | 19 50 57 ·3 | −653 ·6 |
| | Moon I. L. | - - | 15 3 28 ·12 | 126 ·29 | 66 ·15 | 21 55 28 ·3 | 590 ·0 |
| | 20 Libræ - - | 3.4 | 14 54 42 ·75 | | | 24 39 | |
| | ι Libræ - - | 5.6 | 15 3 6 ·13 | | | S. 19 11 | |
| 23 | 20 Libræ - - | 3.4 | 14 54 42 ·75 | | | S. 24 39 | |
| | ι Libræ - - | 5.6 | 15 3 6 ·13 | | | 19 11 | |
| | Moon I. U. | 12 ·3 | 15 29 10 ·15 | 130 ·74 | 67 ·31 | 23 46 16 ·2 | −516 ·3 |
| | Moon I. L. | - - | 15 55 46 ·08 | 135 ·23 | 68 ·46 | 25 21 17 ·6 | 432 ·2 |
| | π Scorpii - | 3.4 | 15 49 10 ·60 | | | 25 39 | |
| | σ Scorpii - | 4 | 16 11 28 ·01 | | | S. 25 12 | |
| 24 | π Scorpii - | 3.4 | 15 49 10 ·60 | | | S. 25 39 | |
| | σ Scorpii - | 4 | 16 11 28 ·01 | | | 25 12 | |
| | Moon I. U. | 13 ·3 | 16 23 14 ·87 | 139 ·51 | 69 ·54 | 26 38 28 ·5 | −337 ·9 |
| | Moon I. L. | - - | 16 51 32 ·30 | 143 ·29 | 70 ·48 | 27 35 48 ·2 | 233 ·9 |
| | 25 Scorpii - | 6 | 16 37 4 ·17 | | | 25 14 | |
| | A Ophiuchi - | 4.5 | 17 5 30 ·81 | | | S. 26 22 | |
| 25 | 25 Scorpii - | 6 | 16 37 4 ·17 | | | S. 25 14 | |
| | A Ophiuchi - | 4.5 | 17 5 30 ·82 | | | 26 22 | |
| | Moon I. U. | 14 ·4 | 17 20 30 ·81 | 146 ·31 | 71 ·22 | 28 11 28 ·1 | −121 ·5 |
| | Moon I. L. | - - | 17 49 59 ·91 | 148 ·35 | 71 ·71 | 28 23 59 ·4 | − 2 ·9 |
| | p Sagittarii | 5 | 17 37 29 ·24 | | | 27 46 | |
| | $\gamma^2$ Sagittarii | 4 | 17 55 31 ·88 | | | S. 30 25 | |
| 26 | p Sagittarii | 5 | 17 37 29 ·26 | | | S. 27 46 | |
| | $\gamma^2$ Sagittarii | 4 | 17 55 31 ·89 | | | 30 25 | |
| | Moon II. U. | 15 ·4 | 18 22 10 ·56 | 149 ·25 | 71 ·93 | 28 12 23 ·0 | +119 ·3 |
| | σ Sagittarii | 3 | 18 45 20 ·43 | | | 26 29 | |
| | τ Sagittarii | 4 | 18 56 56 ·84 | | | S. 27 54 | |
| 27 | σ Sagittarii | 3 | 18 45 20 ·45 | | | S. 26 29 | |
| | τ Sagittarii | 4 | 18 56 56 ·86 | | | 27 54 | |
| | Moon II. L. | - - | 18 52 0 ·79 | 148 ·93 | 71 ·86 | 27 36 15 ·6 | +241 ·8 |
| | Moon II. U. | 16 ·4 | 19 21 40 ·66 | 147 ·54 | 71 ·54 | 26 35 50 ·3 | +361 ·7 |
| | 57 Sagittarii | 5.6 | 19 42 53 ·65 | | | 19 27 | |
| | c Sagittarii | 4.5 | 19 52 48 ·61 | | | S. 28 9 | |
| 28 | 57 Sagittarii | 5.6 | 19 42 53 ·67 | | | S. 19 27 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s D in 1 h of La |
|---|---|---|---|---|---|---|---|
| 1839. | | | h m s | s | s | ° ′ ″ | |
| June 28 | c Sagittarii | 4.5 | 19 52 48 ·63 | | | S. 28 9 | |
| | Moon II. L. | - - | 19 50 58 ·20 | 145 ·26 | 70 ·98 | 25 11 57 ·7 | + 4 |
| | Moon II. U. | 17 ·5 | 20 19 44 ·39 | 142 ·36 | 70 ·28 | 23 25 59 ·4 | 5 |
| | ψ Capricorni | 4.5 | 20 36 36 ·77 | | | 25 51 | |
| | θ Capricorni | 5.6 | 20 56 56 ·58 | | | S. 17 52 | |
| 29 | ψ Capricorni | 4.5 | 20 36 36 ·80 | | | S. 25 51 | |
| | θ Capricorni | 5.6 | 20 56 56 ·60 | | | 17 52 | |
| | Moon II. L. | - - | 20 47 53 ·55 | 139 ·14 | 69 ·48 | 21 19 43 ·4 | + 6 |
| | Moon II. U. | 18 ·5 | 21 15 23 ·52 | 135 ·88 | 68 ·67 | 18 55 14 ·3 | 7 |
| | δ Capricorni | 3.4 | 21 38 11 ·69 | | | 16 51 | |
| | ι Aquarii - | 4.5 | 21 57 46 ·96 | | | S. 14 39 | |
| 30 | δ Capricorni | 3.4 | 21 38 11 ·71 | | | S. 16 51 | |
| | ι Aquarii - | 4.5 | 21 57 46 ·99 | | | 14 39 | |
| | Moon II. L. | - - | 21 42 15 ·38 | 132 ·82 | 67 ·90 | 16 14 48 ·6 | + 83 |
| | Moon II. U. | 19 ·5 | 22 8 32 ·92 | 130 ·19 | 67 ·23 | 13 20 47 ·1 | 90 |
| | σ Aquarii - | 5 | 22 22 10 ·05 | | | 11 30 | |
| | λ Aquarii - | 4 | 22 44 15 ·22 | | | S. 8 26 | |
| July 1 | σ Aquarii - | 5 | 22 22 10 ·08 | | | S. 11 30 | |
| | λ Aquarii - | 4 | 22 44 15 ·25 | | | 8 26 | |
| | Moon II. L. | - - | 22 34 22 ·21 | 128 ·14 | 66 ·70 | 10 15 33 ·2 | + 95 |
| | Moon II. U. | 20 ·6 | 22 59 51 ·12 | 126 ·80 | 66 ·36 | S. 7 1 29 ·7 | 98 |
| | κ¹ Piscium - | 5.6 | 23 18 43 ·07 | | | N. 0 23 | |
| | n Piscium - | 5.6 | 23 39 41 ·58 | | | S. 3 39 | |
| 2 | κ¹ Piscium - | 5.6 | 23 18 43 ·10 | | | N. 0 23 | |
| | n Piscium - | 5.6 | 23 39 41 ·61 | | | S. 3 39 | |
| | Moon II. L. | - - | 23 25 8 ·62 | 126 ·26 | 66 ·23 | 3 41 0 ·8 | +101 |
| | Moon II. U. | 21 ·6 | 23 50 24 ·72 | 126 ·58 | 66 ·32 | S. 0 16 31 ·1 | 102 |
| | d Piscium * | 5.6 | 0 12 21 ·02 | | | N. 7 18 | |
| 3 | d Piscium * | 5.6 | 0 12 21 ·05 | | | N. 7 18 | |
| | Moon II. L. | - - | 0 15 50 ·07 | 127 ·80 | 66 ·65 | 3 9 31 ·3 | +102 |
| | Moon II. U. | 22 ·6 | 0 41 35 ·71 | 129 ·96 | 67 ·21 | 6 34 32 ·2 | 101 |
| | ε Piscium * | 4 | 0 54 37 ·36 | | | 7 1 | |
| | η Piscium - | 4 | 1 22 54 ·19 | | | N. 14 31 | |
| 4 | ε Piscium * | 4 | 0 54 37 ·40 | | | N. 7 1 | |
| | η Piscium - | 4 | 1 22 54 ·22 | | | 14 31 | |
| | Moon II. L. | - - | 1 7 52 ·73 | 133 ·03 | 68 ·02 | 9 55 47 ·5 | + 9 |
| | Moon II. U. | 23 ·7 | 1 34 51 ·89 | 136 ·97 | 69 ·04 | 13 10 22 ·2 | 9 |
| | β Arietis - - | 3 | 1 45 46 ·89 | | | 20 1 | |
| | θ¹ Arietis - - | 6 | 2 9 12 ·28 | | | N. 19 9 | |
| 5 | β Arietis - - | 3 | 1 45 46 ·93 | | | N. 20 1 | |
| | θ¹ Arietis - - | 6 | 2 9 12 ·31 | | | 19 9 | |
| | Moon II. L. | - - | 2 2 43 ·06 | 141 ·68 | 70 ·24 | 16 15 7 ·4 | + 8 |
| | Moon II. U. | 24 ·7 | 2 31 34 ·41 | 146 ·97 | 71 ·56 | N. 19 6 39 ·6 | + 8 |

| ate. | Name. | Mag-nitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 839. | | | h m s | s | s | ° ′ ″ | ″ |
| ly 5 | ε Arietis - - | 5 | 2 50 2 ·23 | | | N.20 42 | |
| | δ Arietis - - | 4 | 3 2 26 ·99 | | | 19 7 | |
| 6 | Moon II. L. | - - | 3 1 31 ·36 | 152 ·55 | 72 ·93 | N.21 41 24 ·4 | +725 ·6 |
| | Moon II. U. | 25 ·8 | 3 32 35 ·30 | 158 ·05 | 74 ·26 | 23 55 42 ·7 | 614 ·3 |
| 7 | Moon II. L. | - - | 4 4 42 ·33 | 162 ·98 | 75 ·43 | N.25 46 1 ·3 | +486 ·0 |
| | Moon II. U. | 26 ·8 | 4 37 42 ·38 | 166 ·80 | 76 ·32 | 27 9 10 ·5 | 343 ·3 |
| 8 | Moon II. L. | - - | 5 11 19 ·21 | 169 ·03 | 76 ·83 | N.28 2 41 ·5 | +190 ·5 |
| | Moon II. U. | 27 ·8 | 5 45 11 ·48 | 169 ·32 | 76 ·88 | 28 25 4 ·4 | + 33 ·1 |
| 9 | Moon II. L. | - - | 6 18 55 ·02 | 167 ·59 | 76 ·45 | N.28 16 2 ·7 | —122 ·5 |
| | Moon II. U. | 28 ·9 | 6 52 6 ·18 | 163 ·98 | 75 ·58 | 27 36 33 ·9 | 270 ·4 |
| 10 | Moon I. L. | - - | 7 21 55 ·83 | 159 ·10 | 74 ·34 | N.26 28 43 ·2 | —405 ·5 |
| 11 | Moon I. U. | 0 ·5 | 7 53 9 ·27 | 153 ·02 | 72 ·85 | N.24 55 26 ·6 | —524 ·3 |
| | Moon I. L. | - - | 8 23 6 ·30 | 146 ·44 | 71 ·21 | 23 0 10 ·2 | 625 ·3 |
| 12 | Moon I. U. | 1 ·6 | 8 51 43 ·66 | 139 ·81 | 69 ·54 | N.20 46 30 ·3 | —708 ·3 |
| | Moon I. L. | - - | 9 19 3 ·01 | 133 ·50 | 67 ·93 | 18 18 0 ·4 | 773 ·9 |
| 13 | Moon I. U. | 2 ·6 | 9 45 9 ·69 | 127 ·73 | 66 ·42 | N.15 37 59 ·0 | —823 ·9 |
| | Moon I. L. | - - | 10 10 11 ·26 | 122 ·67 | 65 ·08 | 12 49 23 ·2 | 859 ·9 |
| 14 | Moon I. U. | 3 ·6 | 10 34 16 ·81 | 118 ·40 | 63 ·94 | N. 9 54 49 ·0 | —883 ·9 |
| | Moon I. L. | - - | 10 57 36 ·08 | 114 ·95 | 63 ·01 | 6 56 31 ·2 | 897 ·5 |
| 15 | χ Leonis - * | 4.5 | 10 56 43 ·71 | | | N. 8 12 | |
| | q Leonis - - | 5.6 | 11 9 1 ·57 | | | 2 54 | |
| | Moon I. U. | 4 ·7 | 11 20 19 ·02 | 112 ·34 | 62 ·31 | 3 56 26 ·2 | —902 ·0 |
| | Moon I. L. | - - | 11 42 35 ·54 | 110 ·55 | 61 ·83 | 0 56 14 ·3 | 898 ·8 |
| | υ Leonis - - | 4.5 | 11 28 42 ·67 | | | 0 4 | |
| | β Virginis - | 3.4 | 11 42 20 ·14 | | | N. 2 40 | |
| 16 | υ Leonis - - | 4.5 | 11 28 42 ·67 | | | N. 0 4 | |
| | β Virginis - | 3.4 | 11 42 20 ·13 | | | N. 2 40 | |
| | Moon I. U. | 5 ·7 | 12 4 35 ·35 | 109 ·55 | 61 ·57 | S. 2 2 36 ·3 | —888 ·6 |
| | Moon I. L. | - - | 12 26 27 ·92 | 109 ·34 | 61 ·54 | 4 58 45 ·2 | 871 ·9 |
| | γ¹ Virginis - | 4 | 12 33 31 ·75 | | | S. 0 34 | |
| 17 | γ¹ Virginis - | 4 | 12 33 31 ·74 | | | S. 0 34 | |
| | Moon I. U. | 6 ·7 | 12 48 22 ·44 | 109 ·87 | 61 ·72 | 7 50 57 ·8 | —849 ·2 |
| | Moon I. L. | - - | 13 10 27 ·80 | 111 ·14 | 62 ·10 | 10 38 0 ·9 | —820 ·3 |
| | θ Virginis - | 4.5 | 13 1 39 ·10 | | | 4 41 | |
| | α Virginis - | 1 | 13 16 45 ·00 | | | S.10 19 | |
| 18 | θ Virginis - | 4.5 | 13 1 39 ·09 | | | S. 4 41 | |
| | α *Virginis* - | *1* | 13 16 44 ·98 | | | S.10 19 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R.A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s D in 1 h of Lon |
|---|---|---|---|---|---|---|---|
| 1839. | | | h m s | s | s | ° ′ ″ | ″ |
| July 18 | Moon I. U. | 7·7 | 13 32 52·58 | 113·10 | 62·67 | S. 13 18 40·3 | −785 |
| | Moon I. L. | - - | 13 55 44·91 | 115·73 | 63·42 | 15 51 37·5 | 743 |
| | κ Virginis - | 4 | 14 4 21·16 | | | S. 9 31 | |
| 19 | κ Virginis - | 4 | 14 4 21·15 | | | S. 9 31 | |
| | Moon I. U. | 8·8 | 14 19 12·45 | 118·96 | 64·33 | 18 15 28·0 | −693 |
| | Moon I. L. | - - | 14 43 22·04 | 122·72 | 65·35 | 20 28 39·4 | 636 |
| | $\alpha^2$ Libræ - - | 3 | 14 42 1·49 | | | 15 22 | |
| | 20 Libræ - - | 3.4 | 14 54 42·57 | | | S. 24 39 | |
| 20 | $\alpha^2$ Libræ - - | 3 | 14 42 1·48 | | | S. 15 22 | |
| | 20 Libræ - - | 3.4 | 14 54 42·56 | | | 24 39 | |
| | Moon I. U. | 9·8 | 15 8 19·25 | 126·88 | 66·48 | 22 29 29·6 | −570 |
| | Moon I. L. | - - | 15 34 8·18 | 131·30 | 67·64 | 24 16 7·6 | 494 |
| | χ Libræ - - | 5.6 | 15 30 49·37 | | | 23 17 | |
| | δ Scorpii - | 3 | 15 50 52·39 | | | S. 22 9 | |
| 21 | χ Libræ - - | 5.6 | 15 30 49·37 | | | S. 23 17 | |
| | δ Scorpii - | 3 | 15 50 52·38 | | | 22 9 | |
| | Moon I. U. | 10·8 | 16 0 50·75 | 135·79 | 68·79 | 25 46 36·6 | −408 |
| | Moon I. L. | - - | 16 28 26·28 | 140·08 | 69·87 | 26 58 55·4 | 31[illegible] |
| | α Scorpii - | 1 | 16 19 35·97 | | | 26 4 | |
| | τ Scorpii - | 3.4 | 16 25 55·55 | | | S. 27 52 | |
| 22 | α Scorpii - | 1 | 16 19 35·97 | | | S. 26 4 | |
| | τ Scorpii - | 3.4 | 16 25 55·55 | | | 27 52 | |
| | Moon I. U. | 11·9 | 16 56 50·89 | 143·92 | 70·82 | 27 51 5·4 | −20[illegible] |
| | Moon I. L. | - - | 17 25 57·41 | 147·02 | 71·57 | 28 21 18·5 | − 9[illegible] |
| | θ Ophiuchi - | 3.4 | 17 12 11·06 | | | 24 50 | |
| | *p* Sagittarii | 5 | 17 37 29·37 | | | S. 27 46 | |
| 23 | θ Ophiuchi - | 3.4 | 17 12 11·06 | | | S. 24 50 | |
| | *p* Sagittarii | 5 | 17 37 29·38 | | | 27 46 | |
| | Moon I. U. | 12·9 | 17 55 35·70 | 149·18 | 72·07 | 28 28 4·6 | + 2[illegible] |
| | Moon I. L. | - - | 18 25 33·21 | 150·21 | 72·30 | 28 10 21·8 | 15[illegible] |
| | λ Sagittarii | 4 | 18 18 5·89 | | | 25 30 | |
| | σ Sagittarii | 3 | 18 45 20·72 | | | S. 26 29 | |
| 24 | λ Sagittarii | 4 | 18 18 5·89 | | | S. 25 30 | |
| | σ Sagittarii | 3 | 18 45 20·72 | | | 26 29 | |
| | Moon I. U. | 14·0 | 18 55 36·08 | 150·08 | 72·24 | 27 27 42·0 | +27[illegible] |
| | Moon I. L. | - - | 19 25 30·77 | 148·87 | 71·91 | 26 20 16·0 | 39[illegible] |
| | $\chi^1$ Sagittarii | 6 | 19 15 32·26 | | | 24 49 | |
| | $h^2$ Sagittarii | 4.5 | 19 26 58·28 | | | S. 25 14 | |
| 25 | $\chi^1$ Sagittarii | 6 | 19 15 32·27 | | | S. 24 49 | |
| | $h^2$ Sagittarii | 4.5 | 19 26 58·28 | | | 25 14 | |
| | Moon I. U. | 15·0 | 19 55 5·29 | 146·75 | 71·37 | 24 48 52·2 | +51[illegible] |
| | π Capricorni | 5 | 20 18 9·74 | | | 18 44 | |
| | ψ Capricorni | 4.5 | 20 36 37·32 | | | S. 25 51 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 1839. | | | h m s | s | s | ° ′ ″ | ″ |
| July 26 | π Capricorni | 5 | 20 18 9·76 | | | S. 18 44 | |
| | ψ Capricorni | 4.5 | 20 36 37·34 | | | 25 51 | |
| | Moon II. L. | - - | 20 26 31·54 | 143·86 | 70·66 | 22 54 54·2 | + 623·3 |
| | Moon II. U. | 16·0 | 20 54 59·34 | 140·74 | 69·88 | 20 40 14·6 | 721·4 |
| | γ Capricorni | 4 | 21 31 13·40 | | | 17 23 | |
| | δ Capricorni | 3.4 | 21 38 12·33 | | | S. 16 51 | |
| 27 | γ Capricorni | 4 | 21 31 13·42 | | | S. 17 23 | |
| | δ Capricorni | 3.4 | 21 38 12·35 | | | 16 51 | |
| | Moon II. L. | - - | 21 22 48·95 | 137·55 | 69·07 | 18 7 7·1 | + 807·7 |
| | Moon II. U. | 17·1 | 21 50 1·26 | 134·55 | 68·30 | 15 18 0·4 | 881·2 |
| | θ Aquarii - | 4.5 | 22 8 23·29 | | | 8 35 | |
| | σ Aquarii - | 5 | 22 22 10·75 | | | S. 11 30 | |
| 28 | θ Aquarii - | 4.5 | 22 8 23·31 | | | S. 8 35 | |
| | σ Aquarii - | 5 | 22 22 10·77 | | | 11 30 | |
| | Moon II. L. | - - | 22 16 39·84 | 131·96 | 67·64 | 12 15 32·8 | + 941·2 |
| | Moon II. U. | 18·1 | 22 42 50·61 | 129·94 | 67·13 | 9 2 25·8 | 987·6 |
| | φ Aquarii - | 5 | 23 6 2·16 | | | S. 6 55 | |
| | $\kappa^1$ Piscium - | 5.6 | 23 18 43·82 | | | N. 0 23 | |
| 29 | φ Aquarii - | 5 | 23 6 2·18 | | | S. 6 55 | |
| | $\kappa^1$ Piscium - | 5.6 | 23 18 43·85 | | | N. 0 23 | |
| | Moon II. L. | - - | 23 8 41·12 | 128·60 | 66·80 | S. 5 41 24·3 | +1020·4 |
| | Moon II. U. | 19·1 | 23 34 20·19 | 128·05 | 66·67 | S. 2 15 11·3 | 1039·5 |
| | ω Piscium * | 4.5 | 23 51 5·54 | | | N. 5 58 | |
| | ι Piscium - | 6 | 0 17 11·37 | | | N. 1 3 | |
| 30 | ω Piscium * | 4.5 | 23 51 5·56 | | | N. 5 58 | |
| | ι Piscium - | 6 | 0 17 11·40 | | | 1 3 | |
| | Moon II. L. | - - | 23 59 57·56 | 128·32 | 66·77 | 1 13 27·7 | +1044·8 |
| | Moon II. U. | 20·2 | 0 25 43·40 | 129·46 | 67·09 | 4 41 47·7 | 1036·2 |
| | δ Piscium * | 5 | 0 40 22·70 | | | 6 42 | |
| | ε Piscium * | 4 | 0 54 38·21 | | | N. 7 1 | |
| 31 | δ Piscium * | 5 | 0 40 22·72 | | | N. 6 42 | |
| | ε Piscium * | 4 | 0 54 38·23 | | | 7 1 | |
| | Moon II. L. | - - | 0 51 48·14 | 131·48 | 67·64 | 8 7 0·4 | +1013·5 |
| | Moon II. U. | 21·2 | 1 18 22·16 | 134·33 | 68·40 | 11 26 14·5 | 976·3 |
| | ο Piscium * | 5 | 1 36 56·18 | | | 8 21 | |
| | β Arietis - - | 3 | 1 45 47·80 | | | N. 20 1 | |
| Aug. 1 | ο Piscium * | 5 | 1 36 56·21 | | | N. 8 21 | |
| | β Arietis - - | 3 | 1 45 47·83 | | | 20 1 | |
| | Moon II. L. | - - | 1 45 35·16 | 137·96 | 69·35 | 14 36 32·0 | + 924·0 |
| | Moon II. U. | 22·2 | 2 13 35·81 | 142·24 | 70·45 | 17 34 48·8 | + 856·1 |
| | π Arietis - - | 5 | 2 40 21·26 | | | 16 47 | |
| | δ Arietis - - | 4 | 3 2 27·88 | | | N. 19 7 | |
| 2 | π Arietis - - | 5 | 2 40 21·29 | | | N. 16 47 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| | | | h m s | s | s | ° ′ ″ | ″ |
| 1839. Aug. 2 | δ Arietis - - | 4 | 3 2 27 ·91 | | | N.19 7 | |
| | Moon II. L. | - - | 2 42 30 ·71 | 146 ·97 | 71 ·64 | 20 17 54 ·7 | +772 ·2 |
| | Moon II. U. | 23 ·3 | 3 12 23 ·76 | 151 ·88 | 72 ·86 | 22 42 37 ·9 | 672 ·3 |
| | η Tauri - - | 3 | 3 37 57 ·36 | | | 23 36 | |
| | A¹ Tauri - - | 5 | 3 55 12 ·90 | | | N.21 38 | |
| 3 | η Tauri - - | 3 | 3 37 57 ·39 | | | N.23 36 | |
| | A¹ Tauri - - | 5 | 3 55 12 ·93 | | | 21 38 | |
| | Moon II. L. | - - | 3 43 14 ·88 | 156 ·58 | 74 ·00 | 24 45 47 ·6 | +556 ·8 |
| | Moon II. U. | 24 ·3 | 4 14 59 ·07 | 160 ·65 | 74 ·97 | 26 24 27 ·2 | 427 ·5 |
| | τ Tauri - - | 5 | 4 32 37 ·00 | | | 22 39 | |
| | ι Tauri - - | 4.5 | 4 53 30 ·24 | | | N.21 21 | |
| 4 | τ Tauri - - | 5 | 4 32 37 ·03 | | | N.22 39 | |
| | ι Tauri - - | 4.5 | 4 53 30 ·27 | | | 21 21 | |
| | Moon II. L. | - - | 4 47 26 ·21 | 163 ·65 | 75 ·68 | 27 36 4 ·6 | +287 ·1 |
| | Moon II. U. | 25 ·4 | 5 20 20 ·95 | 165 ·19 | 76 ·02 | 28 18 48 ·2 | +139 ·3 |
| | C Tauri - - | 4.5 | 5 43 14 ·12 | | | 27 34 | |
| | κ Aurigæ - | 4 | 6 5 8 ·65 | | | N.29 33 | |
| 5 | Moon II. L. | - - | 5 53 24 ·14 | 165 ·03 | 75 ·95 | N.28 31 38 ·9 | — 10 ·9 |
| | Moon II. U. | 26 ·4 | 6 26 14 ·73 | 163 ·12 | 75 ·46 | 28 14 38 ·0 | 158 ·3 |
| 6 | Moon II. L. | - - | 6 58 32 ·81 | 159 ·64 | 74 ·59 | N.27 28 49 ·0 | —298 ·1 |
| | Moon II. U. | 27 ·4 | 7 30 1 ·03 | 154 ·90 | 73 ·40 | 26 16 10 ·0 | 426 ·1 |
| 7 | Moon II. L. | - - | 8 0 27 ·03 | 149 ·34 | 72 ·00 | N.24 39 19 ·3 | —539 ·6 |
| | Moon II. U. | 28 ·5 | 8 29 43 ·47 | 143 ·38 | 70 ·47 | 22 41 22 ·9 | 637 ·0 |
| 8 | Moon II. L. | - - | 8 57 48 ·05 | 137 ·41 | 68 ·94 | N.20 25 36 ·5 | —718 ·0 |
| 9 | Moon I. U. | 0 ·1 | 9 22 27 ·45 | 131 ·96 | 67 ·44 | N.17 55 15 ·6 | —783 ·0 |
| | Moon I. L. | - - | 9 48 19 ·11 | 126 ·75 | 66 ·06 | 15 13 25 ·0 | 833 ·1 |
| 10 | Moon I. U. | 1 ·1 | 10 13 11 ·83 | 122 ·16 | 64 ·83 | N.12 22 56 ·0 | —869 ·6 |
| | Moon I. L. | - - | 10 37 13 ·79 | 118 ·29 | 63 ·79 | 9 26 22 ·6 | 894 ·1 |
| 11 | Moon I. U. | 2 ·2 | 11 0 33 ·73 | 115 ·16 | 62 ·95 | N. 6 26 1 ·1 | —907 ·8 |
| | Moon I. L. | - - | 11 23 20 ·70 | 112 ·79 | 62 ·32 | 3 23 53 ·3 | 912 ·0 |
| 12 | Moon I. U. | 3 ·2 | 11 45 43 ·79 | 111 ·18 | 61 ·90 | N. 0 21 47 ·2 | —907 ·7 |
| | Moon I. L. | - - | 12 7 52 ·02 | 110 ·31 | 61 ·69 | S. 2 38 41 ·7 | 895 ·9 |
| 13 | π Virginis * | 5 | 11 52 38 ·68 | | | N. 7 31 | |
| | η Virginis - | 3.4 | 12 11 41 ·44 | | | N. 0 14 | |
| | Moon I. U. | 4 ·2 | 12 29 54 ·20 | 110 ·17 | 61 ·69 | S. 5 36 5 ·2 | —876 ·9 |
| | Moon I. L. | - - | 12 51 58 ·87 | 110 ·73 | 61 ·89 | 8 29 1 ·5 | —851 ·4 |
| | ψ Virginis - | 5.6 | 12 46 0 ·75 | | | 8 40 | |
| | θ Virginis - | 4.5 | 13 1 38 ·84 | | | S. 4 41 | |

| e. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R.A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 9. | | | h m s | s | s | ° ′ ″ | ″ |
| 14 | ψ Virginis - | 5.6 | 12 46 0 ·74 | | | S. 8 40 | |
| | θ Virginis - | 4.5 | 13 1 38 ·84 | | | 4 41 | |
| | Moon I. U. | 5 ·3 | 13 14 14 ·37 | 111 ·97 | 62 ·29 | 11 16 12 ·2 | —819 ·3 |
| | Moon I. L. | - - | 13 36 48 ·70 | 113 ·86 | 62 ·87 | 13 56 18 ·5 | 780 ·6 |
| | *m* Virginis - | 5.6 | 13 33 12 ·04 | | | 7 53 | |
| | *x* Virginis - | 5.6 | 13 41 9 ·52 | | | S. 17 20 | |
| 15 | *m* Virginis | 5.6 | 13 33 12 ·03 | | | S. 7 53 | |
| | *x* Virginis - | 5.6 | 13 41 9 ·51 | | | 17 20 | |
| | Moon I. U. | 6 ·3 | 13 59 49 ·51 | 116 ·37 | 63 ·60 | 16 28 0 ·2 | —735 ·1 |
| | Moon I. L. | - - | 14 23 23 ·84 | 119 ·44 | 64 ·49 | 18 49 52 ·8 | 682 ·4 |
| | λ Virginis - | 4 | 14 10 26 ·53 | | | 12 38 | |
| | $\alpha^2$ Libræ - - | 3 | 14 42 1 ·17 | | | S. 15 22 | |
| 16 | λ Virginis - | 4 | 14 10 26 ·52 | | | S. 12 38 | |
| | $\alpha^2$ Libræ - - | 3 | 14 42 1 ·16 | | | 15 22 | |
| | Moon I. U. | 7 ·3 | 14 47 37 ·96 | 122 ·99 | 65 ·48 | 21 0 26 ·7 | —621 ·9 |
| | Moon I. L. | - - | 15 12 37 ·08 | 126 ·92 | 66 ·56 | 22 58 5 ·0 | 553 ·1 |
| | ι Libræ - - | 5.6 | 15 3 5 ·63 | | | 19 11 | |
| | χ Libræ - - | 5.6 | 15 30 49 ·05 | | | S. 23 17 | |
| 17 | ι Libræ - - | 5.6 | 15 3 5 ·61 | | | S. 19 11 | |
| | χ Libræ - - | 5.6 | 15 30 49 ·03 | | | 23 17 | |
| | Moon I. U. | 8 ·3 | 15 38 24 ·87 | 131 ·08 | 67 ·68 | 24 41 4 ·6 | —475 ·3 |
| | Moon I. L. | - - | 16 5 3 ·08 | 135 ·28 | 68 ·79 | 26 7 36 ·5 | 388 ·4 |
| | σ Scorpii - | 4 | 16 11 27 ·64 | | | 25 12 | |
| | α Scorpii - | 1 | 16 19 35 ·67 | | | S. 26 4 | |
| 18 | σ Scorpii - | 4 | 16 11 27 ·62 | | | S. 25 12 | |
| | α Scorpii - | 1 | 16 19 35 ·65 | | | 26 4 | |
| | Moon I. U. | 9 ·4 | 16 32 30 ·93 | 139 ·31 | 69 ·83 | 27 15 49 ·9 | —292 ·3 |
| | Moon I. L. | - - | 17 0 44 ·99 | 142 ·94 | 70 ·74 | 28 3 56 ·6 | 187 ·4 |
| | A Ophiuchi | 4.5 | 17 5 30 ·61 | | | 26 22 | |
| | θ Ophiuchi | 3.4 | 17 12 10 ·83 | | | S. 24 50 | |
| 19 | A Ophiuchi | 4.5 | 17 5 30 ·59 | | | S. 26 22 | |
| | θ Ophiuchi | 3.4 | 17 12 10 ·82 | | | 24 50 | |
| | Moon I. U. | 10 ·4 | 17 29 38 ·89 | 145 ·91 | 71 ·48 | 28 30 16 ·4 | — 74 ·7 |
| | Moon I. L. | - - | 17 59 3 ·53 | 148 ·03 | 71 ·98 | 28 33 25 ·5 | + 44 ·1 |
| | $\gamma^2$ Sagittarii | 4 | 17 55 31 ·87 | | | 30 25 | |
| | δ Sagittarii | 3.4 | 18 10 44 ·99 | | | S. 29 53 | |
| 20 | $\gamma^2$ Sagittarii | 4 | 17 55 31 ·85 | | | S. 30 25 | |
| | δ Sagittarii | 3.4 | 18 10 44 ·98 | | | 29 53 | |
| | Moon I. U. | 11 ·5 | 18 28 47 ·76 | 149 ·16 | 72 ·23 | 28 12 23 ·1 | +166 ·8 |
| | Moon I. L. | - - | 18 58 39 ·34 | 149 ·25 | 72 ·21 | 27 26 38 ·0 | +290 ·7 |
| | σ Sagittarii | 3 | 18 45 20 ·65 | | | 26 29 | |
| | τ Sagittarii | 4 | 18 56 57 ·13 | | | S. 27 54 | |
| 21 | σ Sagittarii | 3 | 18 45 20 ·64 | | | S. 26 29 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s in 1 of L |
|---|---|---|---|---|---|---|---|
| 1839. | | | h m s | s | s | ° ′ ″ | |
| Aug. 21 | τ Sagittarii | 4 | 18 56 57 ·12 | | | S. 27 54 | |
| | Moon I. U. | 12 ·5 | 19 28 26 ·05 | 148 ·38 | 71 ·95 | 26 16 12 ·4 | + |
| | Moon I. L. | - - | 19 57 57 ·15 | 146 ·68 | 71 ·49 | 24 41 43 ·9 | |
| | c Sagittarii | 4.5 | 19 52 49 ·17 | | | 28 9 | |
| | σ Capricorni | 5.6 | 20 10 9 ·88 | | | S. 19 37 | |
| 22 | c Sagittarii | 4.5 | 19 52 49 ·17 | | | S. 28 9 | |
| | σ Capricorni | 5.6 | 20 10 9 ·87 | | | 19 37 | |
| | Moon I. U. | 13 ·5 | 20 27 4 ·04 | 144 ·39 | 70 ·88 | 22 44 22 ·6 | + |
| | Moon I. L. | - - | 20 55 41 ·14 | 141 ·76 | 70 ·19 | 20 25 48 ·9 | |
| | η Capricorni | 5 | 20 55 18 ·14 | | | 20 29 | |
| | s Capricorni | 5 | 21 6 53 ·80 | | | S. 15 50 | |
| 23 | η Capricorni | 5 | 20 55 18 ·14 | | | S. 20 29 | |
| | s Capricorni | 5 | 21 6 53 ·80 | | | 15 50 | |
| | Moon I. U. | 14 ·6 | 21 23 46 ·04 | 139 ·06 | 69 ·48 | 17 48 6 ·9 | + |
| | Moon I. L. | - - | 21 51 19 ·28 | 136 ·53 | 68 ·82 | 14 53 41 ·4 | |
| | δ Capricorni | 3.4 | 21 38 12 ·67 | | | 16 51 | |
| | ι Aquarii - | 4.5 | 21 57 48 ·02 | | | S. 14 39 | |
| 24 | δ Capricorni | 3.4 | 21 38 12 ·68 | | | S. 16 51 | |
| | ι Aquarii - | 4.5 | 21 57 48 ·03 | | | 14 39 | |
| | Moon II. U. | 15 ·6 | 22 20 40 ·62 | 134 ·27 | 68 ·25 | 11 45 11 ·0 | + |
| | λ Aquarii - | 4 | 22 44 16 ·44 | | | S. 8 26 | |
| 25 | λ Aquarii - | 4 | 22 44 16 ·45 | | | S. 8 26 | |
| | Moon II. L. | - - | 22 47 21 ·63 | 132 ·66 | 67 ·84 | 8 25 26 ·5 | + |
| | Moon II. U. | 16 ·6 | 23 13 47 ·12 | 131 ·71 | 67 ·60 | S. 4 57 26 ·4 | |
| | λ Piscium - | 5 | 23 33 53 ·66 | | | N. 0 54 | |
| | q Piscium - | 5 | 23 53 38 ·01 | | | S. 3 55 | |
| 26 | λ Piscium - | 5 | 23 33 53 ·67 | | | N. 0 54 | |
| | q Piscium - | 5 | 23 53 38 ·03 | | | S. 3 55 | |
| | Moon II. L. | - - | 23 40 5 ·52 | 131 ·49 | 67 ·56 | S. 1 24 14 ·5 | + |
| | Moon II. U. | 17 ·7 | 0 6 26 ·12 | 132 ·08 | 67 ·74 | N. 2 11 0 ·1 | |
| | δ Piscium * | 5 | 0 40 23 ·37 | | | N. 6 42 | |
| 27 | δ Piscium * | 5 | 0 40 23 ·39 | | | N. 6 42 | |
| | Moon II. L. | - - | 0 32 58 ·59 | 133 ·47 | 68 ·13 | 5 45 4 ·3 | + |
| | Moon II. U. | 18 ·7 | 0 59 52 ·71 | 135 ·68 | 68 ·73 | 9 14 42 ·7 | |
| | η Piscium - | 4 | 1 22 55 ·84 | | | 14 31 | |
| | o Piscium * | 5 | 1 36 56 ·94 | | | N. 8 21 | |
| 28 | η Piscium - | 4 | 1 22 55 ·87 | | | N. 14 31 | |
| | o Piscium * | 5 | 1 36 56 ·97 | | | 8 21 | |
| | Moon II. L. | - - | 1 27 17 ·87 | 138 ·63 | 69 ·53 | 12 36 36 ·6 | + |
| | Moon II. U. | 19 ·7 | 1 55 22 ·46 | 142 ·24 | 70 ·48 | 15 47 26 ·0 | + |
| | ψ Arietis - - | 6 | 2 22 1 ·86 | | | 16 59 | |
| | ν Arietis - - | 5.6 | 2 29 43 ·82 | | | N. 21 16 | |

| | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 9. | | | h m s | s | s | ° ′ ″ | ″ |
| 29 | ψ Arietis - - | 6 | 2 22 1 ·89 | | | N.16 59 | |
| | ν Arietis - - | 5.6 | 2 29 43 ·85 | | | 21 16 | |
| | Moon II. L. | - - | 2 24 13 ·44 | 146 ·32 | 71 ·54 | 18 43 51 ·1 | +840 ·5 |
| | Moon II. U. | 20 ·8 | 2 53 55 ·08 | 150 ·64 | 72 ·65 | 21 22 33 ·5 | 743 ·9 |
| | g Arietis - - | 5.6 | 3 14 51 ·52 | | | 24 9 | |
| | η Tauri - - | 3 | 3 37 58 ·26 | | | N.23 36 | |
| 30 | g Arietis - - | 5.6 | 3 14 51 ·54 | | | N.24 9 | |
| | η Tauri - - | 3 | 3 37 58 ·30 | | | 23 36 | |
| | Moon II. L. | - - | 3 24 28 ·50 | 154 ·89 | 73 ·71 | 23 40 24 ·5 | +632 ·1 |
| | Moon II. U. | 21 ·8 | 3 55 50 ·59 | 158 ·68 | 74 ·65 | 25 34 29 ·7 | 506 ·6 |
| | $v^1$ Tauri - - | 5 | 4 16 43 ·22 | | | 22 27 | |
| | τ Tauri - - | 5 | 4 32 37 ·90 | | | N.22 39 | |
| 31 | $v^1$ Tauri - - | 5 | 4 16 43 ·25 | | | N.22 27 | |
| | τ Tauri - - | 5 | 4 32 37 ·93 | | | 22 39 | |
| | Moon II. L. | - - | 4 27 53 ·45 | 161 ·62 | 75 ·35 | 27 2 19 ·7 | +370 ·1 |
| | Moon II. U. | 22 ·9 | 5 0 24 ·54 | 163 ·33 | 75 ·76 | 28 2 1 ·3 | 225 ·9 |
| | β Tauri - - | 2 | 5 16 9 ·69 | | | 28 28 | |
| | C Tauri - - | 4.5 | 5 43 14 ·99 | | | N.27 34 | |
| t. 1 | β Tauri - - | 2 | 5 16 9 ·72 | | | N.28 28 | |
| | C Tauri - - | 4.5 | 5 43 15 ·02 | | | 27 34 | |
| | Moon II. L. | - - | 5 33 7 ·47 | 163 ·56 | 75 ·80 | 28 32 28 ·7 | + 78 ·5 |
| | Moon II. U. | 23 ·9 | 6 5 43 ·68 | 162 ·20 | 75 ·44 | 28 33 28 ·8 | − 67 ·8 |
| | ε Geminor. | 3 | 6 34 3 ·66 | | | 25 17 | |
| | $ω^1$ Geminor. | 6 | 6 52 37 ·73 | | | N.24 26 | |
| 2 | ε Geminor. | 3 | 6 34 3 ·69 | | | N.25 17 | |
| | $ω^1$ Geminor. | 6 | 6 52 37 ·76 | | | 24 26 | |
| | Moon II. L. | - - | 6 37 54 ·46 | 159 ·35 | 74 ·71 | 28 5 43 ·6 | −208 ·4 |
| | Moon II. U. | 24 ·9 | 7 9 23 ·11 | 155 ·24 | 73 ·67 | 27 10 45 ·6 | 339 ·4 |
| | υ Geminor. | 5 | 7 26 1 ·65 | | | 27 15 | |
| | β Geminor. | 2 | 7 35 29 ·37 | | | N.28 25 | |
| 3 | Moon II. L. | - - | 7 39 56 ·70 | 150 ·24 | 72 ·39 | N.25 50 47 ·4 | −458 ·0 |
| | Moon II. U. | 26 ·0 | 8 9 26 ·71 | 144 ·71 | 70 ·96 | 24 8 29 ·6 | 562 ·5 |
| 4 | Moon II. L. | - - | 8 37 49 ·20 | 139 ·04 | 69 ·46 | N.22 6 47 ·0 | −652 ·1 |
| | Moon II. U. | 27 ·0 | 9 5 4 ·27 | 133 ·52 | 67 ·98 | 19 48 39 ·1 | 726 ·8 |
| 5 | Moon II. L. | - - | 9 31 15 ·14 | 128 ·38 | 66 ·59 | N.17 17 0 ·8 | −787 ·3 |
| | Moon II. U. | 28 ·1 | 9 56 27 ·38 | 123 ·77 | 65 ·32 | 14 34 36 ·8 | 834 ·5 |
| 6 | Moon II. L. | - - | 10 20 48 ·05 | 119 ·79 | 64 ·21 | N.11 44 1 ·1 | −869 ·5 |
| | Moon II. U. | 29 ·1 | 10 44 25 ·02 | 116 ·49 | 63 ·28 | 8 47 34 ·0 | 893 ·3 |
| 7 | Moon I. L. | - - | 11 5 21 ·62 | 114 ·01 | 62 ·55 | N. 5 47 22 ·8 | −906 ·9 |
| 8 | Moon I. U. | 0 ·6 | 11 27 57 ·51 | 112 ·09 | 62 ·02 | N. 2 45 25 ·2 | −911 ·2 |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Decl. in 1 hour of L. |
|---|---|---|---|---|---|---|---|
| 1839. | | | h m s | s | s | ° ′ ″ | |
| Sept. 8 | Moon I. L. | - - | 11 50 14 ·64 | 110 ·88 | 61 ·70 | S. 0 16 32 ·8 | —9 |
| 9 | Moon I. U. | 1 ·6 | 12 12 21 ·25 | 110 ·34 | 61 ·57 | S. 3 16 52 ·3 | — |
| | Moon I. L. | - - | 12 34 25 ·46 | 110 ·47 | 61 ·64 | 6 14 1 ·1 | |
| 10 | Moon I. U. | 2 ·7 | 12 56 35 ·05 | 111 ·24 | 61 ·90 | S. 9 6 30 ·7 | — |
| | Moon I. L. | - - | 13 18 57 ·58 | 112 ·62 | 62 ·34 | 11 52 54 ·9 | |
| 11 | Moon I. U. | 3 ·7 | 13 41 40 ·21 | 114 ·58 | 62 ·93 | S. 14 31 49 ·6 | — |
| | Moon I. L. | - - | 14 4 49 ·61 | 117 ·07 | 63 ·68 | 17 1 48 ·0 | |
| 12 | λ Virginis - | 4 | 14 10 26 ·23 | | | S. 12 38 | |
| | Moon I. U. | 4 ·7 | 14 28 31 ·87 | 120 ·04 | 64 ·55 | 19 21 21 ·7 | — |
| | Moon I. L. | - - | 14 52 52 ·20 | 123 ·40 | 65 ·52 | 21 29 0 ·3 | |
| | 20 Libræ - - | 3.4 | 14 54 41 ·83 | | | 24 39 | |
| | ι Libræ - - | 5.6 | 15 3 5 ·25 | | | S. 19 11 | |
| 13 | 20 Libræ - - | 3.4 | 14 54 41 ·81 | | | S. 24 39 | |
| | ι Libræ - - | 5.6 | 15 3 5 ·24 | | | 19 11 | |
| | Moon I. U. | 5 ·8 | 15 17 54 ·64 | 127 ·04 | 66 ·54 | 23 23 8 ·0 | — |
| | Moon I. L. | - - | 15 43 41 ·74 | 130 ·82 | 67 ·58 | 25 2 6 ·6 | |
| | *b* Scorpii - | 5 | 15 41 20 ·63 | | | 25 15 | |
| | δ Scorpii - | 3 | 15 50 51 ·65 | | | S. 22 9 | |
| 14 | *b* Scorpii - | 5 | 15 41 20 ·62 | | | S. 25 15 | |
| | δ Scorpii - | 3 | 15 50 51 ·64 | | | 22 9 | |
| | Moon I. U. | 6 ·8 | 16 10 14 ·17 | 134 ·56 | 68 ·59 | 26 24 16 ·1 | —3 |
| | Moon I. L. | - - | 16 37 30 ·39 | 138 ·09 | 69 ·53 | 27 27 58 ·7 | 2 |
| | α Scorpii - | 1 | 16 19 35 ·22 | | | 26 4 | |
| | τ Scorpii - | 3.4 | 16 25 54 ·80 | | | S. 27 52 | |
| 15 | α Scorpii - | 1 | 16 19 35 ·21 | | | S. 26 4 | |
| | τ Scorpii - | 3.4 | 16 25 54 ·78 | | | 27 52 | |
| | Moon I. U. | 7 ·8 | 17 5 26 ·55 | 141 ·18 | 70 ·34 | 28 11 40 ·4 | —1 |
| | Moon I. L. | - - | 17 33 56 ·36 | 143 ·66 | 70 ·97 | 28 33 56 ·9 | — |
| | *d* Ophiuchi | 5 | 17 17 7 ·68 | | | 29 43 | |
| | *p* Sagittarii | 5 | 17 37 28 ·74 | | | S. 27 46 | |
| 16 | *d* Ophiuchi | 5 | 17 17 7 ·66 | | | S. 29 43 | |
| | *p* Sagittarii | 5 | 17 37 28 ·72 | | | 27 46 | |
| | Moon I. U. | 8 ·9 | 18 2 51 ·44 | 145 ·38 | 71 ·40 | 28 33 40 ·4 | + |
| | Moon I. L. | - - | 18 32 2 ·08 | 146 ·24 | 71 ·60 | 28 10 2 ·4 | 1 |
| | λ Sagittarii | 4 | 18 18 5 ·38 | | | 25 30 | |
| | σ Sagittarii | 3 | 18 45 20 ·30 | | | S. 26 29 | |
| 17 | λ Sagittarii | 4 | 18 18 5 ·36 | | | S. 25 30 | |
| | σ Sagittarii | 3 | 18 45 20 ·29 | | | 26 29 | |
| | Moon I. U. | 9 ·9 | 19 1 17 ·87 | 146 ·24 | 71 ·58 | 27 22 39 ·4 | +2 |
| | Moon I. L. | - - | 19 30 28 ·85 | 145 ·46 | 71 ·35 | 26 11 33 ·7 | +4 |
| | $h^2$ Sagittarii | 4.5 | 19 26 58 ·02 | | | S. 25 14 | |

| e. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 9. | | | h m s | s | s | ° ′ ″ | ″ |
| 17 | 59 Sagittarii | 5 | 19 47 7 ·50 | | | S. 27 35 | |
| 18 | $h^2$ Sagittarii | 4.5 | 19 26 58 ·00 | | | S. 25 14 | |
| | 59 Sagittarii | 5 | 19 47 7 ·48 | | | 27 35 | |
| | Moon I. U. | 10 ·9 | 19 59 26 ·42 | 144 ·04 | 70 ·95 | 24 37 16 ·0 | + 528 ·1 |
| | Moon I. L. | - - | 20 28 4 ·06 | 142 ·18 | 70 ·45 | 22 40 42 ·6 | 636 ·3 |
| | π Capricorni | 5 | 20 18 9 ·70 | | | 18 44 | |
| | ψ Capricorni | 4.5 | 20 36 37 ·37 | | | S. 25 51 | |
| 19 | π Capricorni | 5 | 20 18 9 ·69 | | | S. 18 44 | |
| | ψ Capricorni | 4.5 | 20 36 37 ·36 | | | 25 51 | |
| | Moon I. U. | 12 ·0 | 20 56 17 ·84 | 140 ·10 | 69 ·88 | 20 23 15 ·3 | + 736 ·9 |
| | Moon I. L. | - - | 21 24 6 ·46 | 138 ·03 | 69 ·31 | 17 46 35 ·1 | 828 ·1 |
| | γ Capricorni | 4 | 21 31 13 ·70 | | | 17 23 | |
| | δ Capricorni | 3.4 | 21 38 12 ·67 | | | S. 16 51 | |
| 20 | γ Capricorni | 4 | 21 31 13 ·70 | | | S. 17 23 | |
| | δ Capricorni | 3.4 | 21 38 12 ·66 | | | 16 51 | |
| | Moon I. U. | 13 ·0 | 21 51 31 ·28 | 136 ·16 | 68 ·80 | 14 52 44 ·4 | + 908 ·4 |
| | Moon I. L. | - - | 22 18 35 ·94 | 134 ·69 | 68 ·39 | 11 44 2 ·4 | 976 ·5 |
| | θ Aquarii - | 4.5 | 22 8 23 ·74 | | | 8 35 | |
| | σ Aquarii - | 5 | 22 22 11 ·28 | | | S. 11 30 | |
| 21 | θ Aquarii - | 4.5 | 22 8 23 ·74 | | | S. 8 35 | |
| | σ Aquarii - | 5 | 22 22 11 ·27 | | | 11 30 | |
| | Moon I. U. | 14 ·0 | 22 45 26 ·03 | 133 ·76 | 68 ·13 | 8 23 3 ·9 | +1030 ·9 |
| | Moon I. L. | - - | 23 12 8 ·80 | 133 ·49 | 68 ·05 | 4 52 39 ·8 | 1070 ·6 |
| | φ Aquarii - | 5 | 23 6 2 ·88 | | | S. 6 55 | |
| | $\kappa^1$ Piscium - | 5.6 | 23 18 44 ·59 | | | N. 0 23 | |
| 22 | φ Aquarii - | 5 | 23 6 2 ·88 | | | S. 6 55 | |
| | $\kappa^1$ Piscium - | 5.6 | 23 18 44 ·60 | | | N. 0 23 | |
| | Moon I. U. | 15 ·1 | 23 38 52 ·61 | 133 ·95 | 68 ·17 | S. 1 15 54 ·6 | +1094 ·2 |
| | ω Piscium * | 4.5 | 23 51 6 ·44 | | | N. 5 58 | |
| | *d* Piscium * | 5.6 | 0 12 22 ·84 | | | N. 7 18 | |
| 23 | ω Piscium * | 4.5 | 23 51 6 ·45 | | | N. 5 58 | |
| | *d* Piscium * | 5.6 | 0 12 22 ·85 | | | 7 18 | |
| | Moon II. L. | - - | 0 8 3 ·71 | 135 ·27 | 68 ·51 | 2 23 52 ·8 | +1100 ·7 |
| | Moon II. U. | 16 ·1 | 0 35 18 ·68 | 137 ·36 | 69 ·07 | 6 3 10 ·1 | 1089 ·1 |
| | ε Piscium * | 4 | 0 54 39 ·39 | | | 7 1 | |
| | η Piscium - | 4 | 1 22 56 ·38 | | | N. 14 31 | |
| 24 | ε Piscium * | 4 | 0 54 39 ·40 | | | N. 7 1 | |
| | η Piscium - | 4 | 1 22 56 ·40 | | | 14 31 | |
| | Moon II. L. | - - | 1 3 3 ·46 | 140 ·23 | 69 ·82 | 9 38 14 ·4 | +1058 ·4 |
| | Moon II. U. | 17 ·2 | 1 31 26 ·94 | 143 ·79 | 70 ·77 | 13 5 13 ·9 | +1008 ·2 |
| | β Arietis - - | 3 | 1 45 49 ·22 | | | 20 1 | |
| | $\theta^1$ Arietis - - | 6 | 2 9 14 ·68 | | | N. 19 9 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Decl. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 1839. | | | h m s | s | s | ° ′ ″ | ″ |
| Sept. 25 | β Arietis - - | 3 | 1 45 49 ·24 | | | N.20 1 | |
| | θ¹ Arietis - - | 6 | 2 9 14 ·70 | | | 19 9 | |
| | Moon II. L. | - - | 2 0 36 ·69 | 147 ·91 | 71 ·84 | 16 20 12 ·3 | +938 |
| | Moon II. U. | 18 ·2 | 2 30 38 ·08 | 152 ·35 | 73 ·00 | 19 19 11 ·9 | 848 |
| | ε Arietis - - | 5 | 2 50 4 ·75 | | | 20 42 | |
| | δ Arietis - - | 4 | 3 2 29 ·51 | | | N.19 7 | |
| 26 | ε Arietis - - | 5 | 2 50 4 ·77 | | | N.20 42 | |
| | δ Arietis - - | 4 | 3 2 29 ·54 | | | 19 7 | |
| | Moon II. L. | - - | 3 1 33 ·18 | 156 ·81 | 74 ·14 | 21 58 24 ·4 | +740 |
| | Moon II. U. | 19 ·2 | 3 33 19 ·89 | 160 ·88 | 75 ·17 | 24 14 16 ·4 | 615 |
| | A¹ Tauri - - | 5 | 3 55 14 ·64 | | | 21 38 | |
| | υ¹ Tauri - - | 5 | 4 16 44 ·06 | | | N.22 27 | |
| 27 | A¹ Tauri - - | 5 | 3 55 14 ·67 | | | N.21 38 | |
| | υ¹ Tauri - - | 5 | 4 16 44 ·09 | | | 22 27 | |
| | Moon II. L. | - - | 4 5 51 ·11 | 164 ·15 | 76 ·00 | 26 3 45 ·7 | +477 |
| | Moon II. U. | 20 ·3 | 4 38 54 ·64 | 166 ·20 | 76 ·52 | 27 24 29 ·6 | 328 |
| | β Tauri - - | 2 | 5 16 10 ·61 | | | 28 28 | |
| | l Aurigæ - | 5 | 5 28 21 ·33 | | | N.30 23 | |
| 28 | β Tauri - - | 2 | 5 16 10 ·64 | | | N.28 28 | |
| | l Aurigæ - | 5 | 5 28 21 ·36 | | | 30 23 | |
| | Moon II. L. | - - | 5 12 13 ·82 | 166 ·71 | 76 ·66 | 28 14 59 ·6 | +175 |
| | Moon II. U. | 21 ·3 | 5 45 29 ·06 | 165 ·53 | 76 ·39 | 28 34 46 ·9 | + 22 |
| | κ Aurigæ - | 4 | 6 5 10 ·47 | | | 29 33 | |
| | ε Geminor. | 3 | 6 34 4 ·54 | | | N.25 17 | |
| 29 | κ Aurigæ - | 4 | 6 5 10 ·50 | | | N.29 33 | |
| | ε Geminor. | 3 | 6 34 4 ·58 | | | 25 17 | |
| | Moon II. L. | - - | 6 18 20 ·24 | 162 ·73 | 75 ·71 | 28 24 25 ·8 | −124 |
| | Moon II. U. | 22 ·4 | 6 50 29 ·07 | 158 ·53 | 74 ·67 | 27 45 26 ·8 | 263 |
| | ι Geminor. | 4 | 7 15 46 ·19 | | | 28 7 | |
| | β Geminor. | 2 | 7 35 30 ·21 | | | N.28 25 | |
| 30 | ι Geminor. | 4 | 7 15 46 ·23 | | | N.28 7 | |
| | β Geminor. | 2 | 7 35 30 ·24 | | | 28 25 | |
| | Moon II. L. | - - | 7 21 40 ·91 | 153 ·31 | 73 ·36 | 26 40 5 ·1 | −388 |
| | Moon II. U. | 23 ·4 | 7 51 46 ·01 | 147 ·48 | 71 ·87 | 25 11 6 ·1 | 499 |
| | λ Cancri - - | 6 | 8 10 59 ·37 | | | 24 31 | |
| | γ Cancri - - | 5 | 8 34 0 ·00 | | | N.22 3 | |
| Oct. 1 | λ Cancri - - | 6 | 8 10 59 ·40 | | | N.24 31 | |
| | γ Cancri - - | 5 | 8 34 0 ·03 | | | 22 3 | |
| | Moon II. L. | - - | 8 20 39 ·56 | 141 ·45 | 70 ·30 | 23 21 28 ·9 | −594 |
| | Moon II. U. | 24 ·4 | 8 48 21 ·20 | 135 ·54 | 68 ·72 | 21 14 15 ·9 | −673 |
| | q Cancri - - | 6 | 9 10 1 ·21 | | | 18 23 | |
| | λ Leonis - - | 4.5 | 9 22 33 ·65 | | | N.23 40 | |
| 2 | q Cancri - - | 6 | 9 10 1 ·23 | | | N.18 23 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 39. | | | h m s | s | s | ° ′ ″ | ″ |
| 2 | λ Leonis - - | 4.5 | 9 22 33 ·67 | | | N.23 40 | |
| | Moon II. L. | - - | 9 14 54 ·04 | 130 ·02 | 67 ·22 | 18 52 23 ·1 | —741 ·4 |
| | Moon II. U. | 25 ·5 | 9 40 23 ·80 | 125 ·05 | 65 ·84 | 16 18 34 ·5 | 794 ·6 |
| | α Leonis - * | 1 | 9 59 49 ·55 | | | 12 45 | |
| | γ Leonis - - | 2 | 10 11 6 ·99 | | | N.20 39 | |
| 3 | Moon II. L. | - - | 10 4 57 ·74 | 120 ·73 | 64 ·61 | N.13 35 21 ·0 | —835 ·8 |
| | Moon II. U. | 26 ·5 | 10 28 44 ·13 | 117 ·12 | 63 ·57 | 10 44 58 ·7 | 866 ·2 |
| 4 | Moon II. L. | - - | 10 51 51 ·61 | 114 ·25 | 62 ·72 | N. 7 49 32 ·4 | —886 ·7 |
| | Moon II. U. | 27 ·5 | 11 14 29 ·00 | 112 ·10 | 62 ·08 | 4 50 54 ·7 | 898 ·2 |
| 5 | Moon II. L. | - - | 11 36 44 ·80 | 110 ·66 | 61 ·64 | N. 1 50 50 ·5 | —901 ·2 |
| | Moon II. U. | 28 ·6 | 11 58 47 ·49 | 109 ·91 | 61 ·41 | S. 1 9 2 ·0 | 896 ·3 |
| 6 | Moon II. L. | - - | 12 20 45 ·17 | 109 ·82 | 61 ·37 | S. 4 7 9 ·4 | —883 ·7 |
| | Moon II. U. | 29 ·6 | 12 42 45 ·62 | 110 ·36 | 61 ·51 | 7 2 1 ·5 | 863 ·7 |
| 7 | Moon I. L. | - - | 13 2 52 ·56 | 111 ·44 | 61 ·85 | S. 9 52 8 ·5 | —836 ·3 |
| 8 | Moon I. U. | 0 ·9 | 13 25 19 ·40 | 113 ·12 | 62 ·35 | S.12 36 1 ·7 | —801 ·4 |
| | Moon I. L. | - - | 13 48 9 ·61 | 115 ·33 | 63 ·00 | 15 12 11 ·0 | 758 ·9 |
| 9 | Moon I. U. | 1 ·9 | 14 11 29 ·10 | 117 ·99 | 63 ·77 | S.17 39 3 ·9 | —708 ·6 |
| | Moon I. L. | - - | 14 35 22 ·94 | 121 ·04 | 64 ·65 | 19 55 5 ·6 | 650 ·4 |
| 10 | Moon I. U. | 3 ·0 | 14 59 55 ·09 | 124 ·36 | 65 ·60 | S.21 58 40 ·2 | —584 ·0 |
| | Moon I. L. | - - | 15 25 8 ·16 | 127 ·83 | 66 ·58 | 23 48 8 ·9 | 509 ·5 |
| 11 | χ Libræ - - | 5.6 | 15 30 48 ·32 | | | S.23 17 | |
| | b Scorpii - | 5 | 15 41 20 ·30 | | | 25 15 | |
| | Moon I. U. | 4 ·0 | 15 51 3 ·12 | 131 ·31 | 67 ·54 | 25 21 55 ·1 | —426 ·9 |
| | Moon I. L. | - - | 16 17 38 ·95 | 134 ·62 | 68 ·45 | 26 38 22 ·5 | 336 ·5 |
| | σ Scorpii - | 4 | 16 11 26 ·83 | | | 25 12 | |
| | α Scorpii - | 1 | 16 19 34 ·84 | | | S.26 4 | |
| 12 | σ Scorpii - | 4 | 16 11 26 ·82 | | | S.25 12 | |
| | α Scorpii - | 1 | 16 19 34 ·83 | | | 26 4 | |
| | Moon I. U. | 5 ·0 | 16 44 52 ·49 | 137 ·57 | 69 ·26 | 27 36 2 ·6 | —239 ·0 |
| | Moon I. L. | - - | 17 12 38 ·43 | 139 ·99 | 69 ·92 | 28 13 35 ·2 | 135 ·5 |
| | A Ophiuchi | 4.5 | 17 5 29 ·73 | | | 26 22 | |
| | θ Ophiuchi | 3.4 | 17 12 9 ·96 | | | S.24 50 | |
| 13 | A Ophiuchi | 4.5 | 17 5 29 ·72 | | | S.26 22 | |
| | θ Ophiuchi | 3.4 | 17 12 9 ·95 | | | 24 50 | |
| | Moon I. U. | 6 ·1 | 17 40 49 ·60 | 141 ·75 | 70 ·39 | 28 29 55 ·2 | — 27 ·2 |
| | Moon I. L. | - - | 18 9 17 ·31 | 142 ·74 | 70 ·66 | 28 24 14 ·2 | + 84 ·4 |
| | δ Sagittarii | 3.4 | 18 10 44 ·09 | | | 29 53 | |
| | λ Sagittarii | 4 | 18 18 4 ·91 | | | S.25 30 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R.A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Va ☾'s in 1 of 1 |
|---|---|---|---|---|---|---|---|
| 1839. | | | h m s | s | s | ° ′ ″ | |
| Oct. 14 | δ Sagittarii | 3.4 | 18 10 44 ·07 | | | S. 29 53 | |
| | λ Sagittarii | 4 | 18 18 4 ·90 | | | 25 30 | |
| | Moon I. U. | 7 ·1 | 18 37 52 ·24 | 142 ·95 | 70 ·72 | 27 56 5 ·4 | + |
| | Moon I. L. | - - | 19 6 25 ·19 | 142 ·42 | 70 ·59 | 27 5 24 ·0 | |
| | τ Sagittarii | 4 | 18 56 56 ·30 | | | 27 54 | |
| | $h^2$ Sagittarii | 4.5 | 19 26 57 ·57 | | | S. 25 14 | |
| 15 | τ Sagittarii | 4 | 18 56 56 ·28 | | | S. 27 54 | |
| | $h^2$ Sagittarii | 4.5 | 19 26 57 ·55 | | | 25 14 | |
| | Moon I. U. | 8 ·2 | 19 34 47 ·97 | 141 ·28 | 70 ·29 | 25 52 26 ·8 | + |
| | Moon I. L. | - - | 20 2 54 ·10 | 139 ·68 | 69 ·86 | 24 17 51 ·7 | |
| | c Sagittarii | 4.5 | 19 52 48 ·47 | | | 28 9 | |
| | σ Capricorni | 5.6 | 20 10 9 ·28 | | | S. 19 37 | |
| 16 | c Sagittarii | 4.5 | 19 52 48 ·46 | | | S. 28 9 | |
| | σ Capricorni | 5.6 | 20 10 9 ·27 | | | 19 37 | |
| | Moon I. U. | 9 ·2 | 20 30 39 ·22 | 137 ·82 | 69 ·37 | 22 22 35 ·3 | + |
| | Moon I. L. | - - | 20 58 1 ·56 | 135 ·91 | 68 ·84 | 20 7 50 ·3 | |
| | η Capricorni | 5 | 20 55 17 ·69 | | | 20 29 | |
| | s Capricorni | 5 | 21 6 53 ·41 | | | S. 15 50 | |
| 17 | η Capricorni | 5 | 20 55 17 ·68 | | | S. 20 29 | |
| | s Capricorni | 5 | 21 6 53 ·40 | | | 15 50 | |
| | Moon I. U. | 10 ·2 | 21 25 1 ·66 | 134 ·15 | 68 ·36 | 17 35 3 ·6 | + |
| | Moon I. L. | - - | 21 51 42 ·36 | 132 ·71 | 67 ·96 | 14 45 54 ·4 | |
| | δ Capricorni | 3.4 | 21 38 12 ·39 | | | 16 51 | |
| | ι Aquarii - | 4.5 | 21 57 47 ·84 | | | S. 14 39 | |
| 18 | δ Capricorni | 3.4 | 21 38 12 ·38 | | | S. 16 51 | |
| | ι Aquarii - | 4.5 | 21 57 47 ·83 | | | 14 39 | |
| | Moon I. U. | 11 ·3 | 22 18 8 ·58 | 131 ·76 | 67 ·68 | 11 42 15 ·9 | + |
| | Moon I. L. | - - | 22 44 26 ·93 | 131 ·41 | 67 ·55 | 8 26 14 ·2 | 1 |
| | λ Aquarii - | 4 | 22 44 16 ·46 | | | S. 8 26 | |
| 19 | λ Aquarii - | 4 | 22 44 16 ·45 | | | S. 8 26 | |
| | Moon I. U. | 12 ·3 | 23 10 45 ·36 | 131 ·79 | 67 ·62 | 5 0 10 ·8 | +1 |
| | Moon I. L. | - - | 23 37 12 ·99 | 132 ·96 | 67 ·91 | S. 1 26 45 ·1 | 1 |
| | λ Piscium - | 5 | 23 33 53 ·93 | | | N. 0 54 | |
| | q Piscium - | 5 | 23 53 38 ·38 | | | S. 3 55 | |
| 20 | λ Piscium - | 5 | 23 33 53 ·92 | | | N. 0 54 | |
| | q Piscium - | 5 | 23 53 38 ·38 | | | S. 3 55 | |
| | Moon I. U. | 13 ·3 | 0 3 59 ·73 | 134 ·98 | 68 ·42 | N. 2 11 4 ·1 | +1 |
| | Moon I. L. | - - | 0 31 15 ·89 | 137 ·87 | 69 ·15 | 5 49 55 ·6 | 1 |
| | δ Piscium * | 5 | 0 40 23 ·98 | | | N. 6 42 | |
| 21 | δ Piscium * | 5 | 0 40 23 ·98 | | | N. 6 42 | |
| | Moon I. U. | 14 ·4 | 0 59 11 ·84 | 141 ·60 | 70 ·12 | 9 26 7 ·1 | +1 |
| | Moon I. L. | - - | 1 27 57 ·26 | 146 ·10 | 71 ·26 | 12 55 35 ·1 | +1 |
| | η Piscium - | 4 | 1 22 56 ·68 | | | N. 14 31 | |

| e. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 9. | | | h m s | s | s | ° ′ ″ | ″ |
| 21 | β Arietis - - | 3 | 1 45 49 ·58 | | | N.20 1 | |
| 22 | η Piscium - | 4 | 1 22 56 ·69 | | | N.14 31 | |
| | β Arietis - - | 3 | 1 45 49 ·58 | | | 20 1 | |
| | Moon II. U. | 15 ·4 | 2 0 5 ·63 | 151 ·42 | 72 ·55 | 16 13 57 ·1 | +956 ·6 |
| | π Arietis - - | 5 | 2 40 23 ·32 | | | 16 47 | |
| | ε Arietis - - | 5 | 2 50 5 ·28 | | | N.20 42 | |
| 23 | π Arietis - - | 5 | 2 40 23 ·33 | | | N.16 47 | |
| | ε Arietis - - | 5 | 2 50 5 ·30 | | | 20 42 | |
| | Moon II. L. | - - | 2 30 54 ·94 | 156 ·84 | 73 ·91 | 19 16 42 ·7 | +867 ·1 |
| | Moon II. U. | 16 ·4 | 3 2 49 ·34 | 162 ·18 | 75 ·24 | 21 59 19 ·0 | 755 ·3 |
| | η Tauri - - | 3 | 3 37 59 ·76 | | | 23 36 | |
| | A¹ Tauri - - | 5 | 3 55 15 ·34 | | | N.21 38 | |
| 24 | η Tauri - - | 3 | 3 37 59 ·78 | | | N.23 36 | |
| | A¹ Tauri - - | 5 | 3 55 15 ·36 | | | 21 38 | |
| | Moon II. L. | - - | 3 35 44 ·98 | 166 ·95 | 76 ·43 | 24 17 29 ·8 | +623 ·2 |
| | Moon II. U. | 17 ·5 | 4 9 31 ·83 | 170 ·62 | 77 ·35 | 26 7 31 ·3 | 474 ·6 |
| | τ Tauri - - | 5 | 4 32 39 ·56 | | | 22 39 | |
| | ι Tauri - - | 4.5 | 4 53 32 ·81 | | | N.21 21 | |
| 25 | τ Tauri - - | 5 | 4 32 39 ·59 | | | N.22 39 | |
| | ι Tauri - - | 4.5 | 4 53 32 ·84 | | | 21 21 | |
| | Moon II. L. | - - | 4 43 53 ·55 | 172 ·68 | 77 ·90 | 27 26 34 ·3 | +314 ·5 |
| | Moon II. U. | 18 ·5 | 5 18 28 ·40 | 172 ·77 | 77 ·97 | 28 12 59 ·9 | +149 ·5 |
| | C Tauri - - | 4.5 | 5 43 16 ·83 | | | 27 34 | |
| | κ Aurigæ - | 4 | 6 5 11 ·39 | | | N.29 33 | |
| 26 | C Tauri - - | 4.5 | 5 43 16 ·86 | | | N.27 34 | |
| | κ Aurigæ - | 4 | 6 5 11 ·42 | | | 29 33 | |
| | Moon II. L. | - - | 5 52 51 ·91 | 170 ·79 | 77 ·56 | 28 26 30 ·5 | — 13 ·5 |
| | Moon II. U. | 19 ·6 | 6 26 40 ·00 | 166 ·92 | 76 ·66 | 28 8 7 ·1 | 168 ·4 |
| | τ Geminor. | 5 | 7 0 57 ·15 | | | 30 30 | |
| | ι Geminor. | 4 | 7 15 47 ·12 | | | N.28 7 | |
| 27 | τ Geminor. | 5 | 7 0 57 ·18 | | | N.30 30 | |
| | ι Geminor. | 4 | 7 15 47 ·16 | | | 28 7 | |
| | Moon II. L. | - - | 6 59 31 ·96 | 161 ·53 | 75 ·39 | 27 19 59 ·6 | —310 ·2 |
| | Moon II. U. | 20 ·6 | 7 31 12 ·72 | 155 ·14 | 73 ·84 | 26 5 6 ·7 | 435 ·7 |
| | 6 Cancri - - | 5.6 | 7 53 40 ·47 | | | 28 14 | |
| | λ Cancri - - | 6 | 8 11 0 ·25 | | | N.24 31 | |
| 28 | 6 Cancri - - | 5.6 | 7 53 40 ·51 | | | N.28 14 | |
| | λ Cancri - - | 6 | 8 11 0 ·29 | | | 24 31 | |
| | Moon II. L. | - - | 8 1 33 ·35 | 148 ·27 | 72 ·13 | 24 26 53 ·5 | —543 ·5 |
| | Moon II. U. | 21 ·7 | 8 30 31 ·02 | 141 ·39 | 70 ·36 | 22 28 52 ·9 | —633 ·7 |
| | ξ Cancri - - | 5.6 | 9 0 8 ·61 | | | 22 42 | |
| | q Cancri - - | 6 | 9 10 2 ·00 | | | N.18 23 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | V ☾ in of |
|---|---|---|---|---|---|---|---|
| 1839. | | | h m s | s | s | ° ′ ″ | |
| Oct. 29 | ξ Cancri - - | 5.6 | 9 0 8·64 | | | N.22 42 | |
| | q Cancri - - | 6 | 9 10 2·03 | | | 18 23 | |
| | Moon II. L. | - - | 8 58 7·90 | 134·85 | 68·65 | 20 14 30·8 | — |
| | Moon II. U. | 22·7 | 9 24 29·59 | 128·88 | 67·04 | 17 46 56·1 | |
| | ν Leonis - * | 5.6 | 9 49 36·03 | | | 13 13 | |
| | α Leonis - * | 1 | 9 59 50·25 | | | N.12 45 | |
| 30 | ν Leonis - * | 5.6 | 9 49 36·06 | | | N.13 13 | |
| | α Leonis - * | 1 | 9 59 50·28 | | | 12 45 | |
| | Moon II. L. | - - | 9 49 44·01 | 123·65 | 65·59 | 15 8 58·3 | — |
| | Moon II. U. | 23·7 | 10 14 0·47 | 119·22 | 64·34 | 12 23 5·9 | |
| | ρ Leonis - * | 4 | 10 24 22·15 | | | 10 8 | |
| | l Leonis - * | 6 | 10 40 49·49 | | | N.11 24 | |
| 31 | ρ Leonis - * | 4 | 10 24 22·18 | | | N.10 8 | |
| | l Leonis - * | 6 | 10 40 49·52 | | | 11 24 | |
| | Moon II. L. | - - | 10 37 28·67 | 115·62 | 63·29 | 9 31 29·7 | — |
| | Moon II. U. | 24·7 | 11 0 18·56 | 112·83 | 62·46 | 6 36 3·6 | |
| | σ Leonis - * | 4 | 11 12 51·88 | | | 6 55 | |
| | υ Leonis - - | 4.5 | 11 28 43·35 | | | N. 0 4 | |
| Nov. 1 | σ Leonis - * | 4 | 11 12 51·91 | | | N. 6 55 | |
| | υ Leonis - - | 4.5 | 11 28 43·38 | | | 0 4 | |
| | Moon II. L. | - - | 11 22 39·87 | 110·85 | 61·85 | 3 38 29·4 | — |
| | Moon II. U. | 25·8 | 11 44 41·97 | 109·63 | 61·45 | 0 40 20·7 | |
| | η Virginis - | 3.4 | 12 11 41·95 | | | N. 0 14 | |
| 2 | Moon II. L. | - - | 12 6 33·81 | 109·13 | 61·27 | S. 2 16 55·6 | — |
| | Moon II. U. | 26·8 | 12 28 23·98 | 109·34 | 61·30 | 5 11 56·3 | |
| 3 | Moon II. L. | - - | 12 50 20·55 | 110·20 | 61·51 | S. 8 3 17·9 | — |
| | Moon II. U. | 27·8 | 13 12 31·22 | 111·68 | 61·91 | 10 49 36·8 | |
| 4 | Moon II. L. | - - | 13 35 3·02 | 113·71 | 62·46 | S. 13 29 26·0 | — |
| | Moon II. U. | 28·9 | 13 58 2·35 | 116·25 | 63·16 | 16 1 14·9 | |
| 5 | Moon II. L. | - - | 14 21 34·81 | 119·22 | 63·98 | S. 18 23 29·2 | — |
| | Moon I. U. | 29·9 | 14 43 35·13 | 122·35 | 64·89 | 20 34 30·7 | |
| 6 | Moon I. L. | - - | 15 8 24·06 | 125·82 | 65·84 | S. 22 32 37·6 | — |
| 7 | Moon I. U. | 1·2 | 15 33 55·08 | 129·34 | 66·81 | S. 24 16 7·1 | — |
| | Moon I. L. | - - | 16 0 7·79 | 132·73 | 67·72 | 25 43 17·4 | |
| 8 | Moon I. U. | 2·3 | 16 26 59·34 | 135·79 | 68·56 | S. 26 52 33·2 | — |
| | Moon I. L. | - - | 16 54 24·74 | 138·34 | 69·25 | 27 42 29·0 | |
| 9 | Moon I. U. | 3·3 | 17 22 16·77 | 140·21 | 69·77 | S. 28 11 53·9 | — |
| | Moon I. L. | - - | 17 50 26·59 | 141·29 | 70·07 | S. 28 19 56·3 | + |

| ate. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R.A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 39. | | | h m s | s | s | ° ′ ″ | ″ |
| . 10 | p Sagittarii | 5 | 17 37 27·98 | | | S. 27 46 | |
| | γ² Sagittarii | 4 | 17 55 30·62 | | | 30 25 | |
| | Moon I. U. | 4·3 | 18 18 44·32 | 141·53 | 70·17 | 28 6 6·8 | + 124·1 |
| | Moon I. L. | - - | 18 47 0·06 | 140·96 | 70·05 | 27 30 19·5 | 233·5 |
| | σ Sagittarii | 3 | 18 45 19·44 | | | 26 29 | |
| | τ Sagittarii | 4 | 18 56 55·91 | | | S. 27 54 | |
| 11 | σ Sagittarii | 3 | 18 45 19·43 | | | S. 26 29 | |
| | τ Sagittarii | 4 | 18 56 55·89 | | | 27 54 | |
| | Moon I. U. | 5·4 | 19 15 4·68 | 139·70 | 69·75 | 26 32 52·6 | + 340·4 |
| | Moon I. L. | - - | 19 42 50·76 | 137·90 | 69·30 | 25 14 24·9 | 443·4 |
| | h² Sagittarii | 4.5 | 19 26 57·15 | | | 25 14 | |
| | c Sagittarii | 4.5 | 19 52 48·04 | | | S. 28 9 | |
| 12 | h² Sagittarii | 4.5 | 19 26 57·14 | | | S. 25 14 | |
| | c Sagittarii | 4.5 | 19 52 48·03 | | | 28 9 | |
| | Moon I. U. | 6·4 | 20 10 13·01 | 135·77 | 68·76 | 23 35 52·8 | + 541·0 |
| | Moon I. L. | - - | 20 37 8·66 | 133·51 | 68·18 | 21 38 27·4 | 632·2 |
| | ψ Capricorni | 4.5 | 20 36 36·55 | | | 25 51 | |
| | η Capricorni | 5 | 20 55 17·29 | | | S. 20 29 | |
| 13 | ψ Capricorni | 4.5 | 20 36 36·54 | | | S. 25 51 | |
| | η Capricorni | 5 | 20 55 17·28 | | | 20 29 | |
| | Moon I. U. | 7·4 | 21 3 37·45 | 131·33 | 67·61 | 19 23 29·3 | + 716·3 |
| | Moon I. L. | - - | 21 29 41·54 | 129·42 | 67·09 | 16 52 26·7 | 792·9 |
| | γ Capricorni | 4 | 21 31 13·05 | | | 17 23 | |
| | δ Capricorni | 3.4 | 21 38 12·03 | | | S. 16 51 | |
| 14 | γ Capricorni | 4 | 21 31 13·03 | | | S. 17 23 | |
| | δ Capricorni | 3.4 | 21 38 12·02 | | | 16 51 | |
| | Moon I. U. | 8·5 | 21 55 25·13 | 127·94 | 66·69 | 14 6 53·3 | + 861·3 |
| | Moon I. L. | - - | 22 20 54·26 | 127·03 | 66·44 | 11 8 29·5 | 921·2 |
| | θ Aquarii - | 4.5 | 22 8 23·21 | | | 8 35 | |
| | σ Aquarii - | 5 | 22 22 10·79 | | | S. 11 30 | |
| 15 | θ Aquarii - | 4.5 | 22 8 23·20 | | | S. 8 35 | |
| | σ Aquarii - | 5 | 22 22 10·78 | | | 11 30 | |
| | Moon I. U. | 9·5 | 22 46 16·54 | 126·81 | 66·36 | 7 59 2·9 | + 971·7 |
| | Moon I. L. | - - | 23 11 40·78 | 127·37 | 66·49 | 4 40 30·4 | 1012·0 |
| | φ Aquarii - | 5 | 23 6 2·57 | | | S. 6 55 | |
| | κ¹ Piscium - | 5.6 | 23 18 44·34 | | | N. 0 23 | |
| 16 | φ Aquarii - | 5 | 23 6 2·56 | | | S. 6 55 | |
| | κ¹ Piscium - | 5.6 | 23 18 44·33 | | | N. 0 23 | |
| | Moon I. U. | 10·5 | 23 37 16·90 | 128·80 | 66·85 | S. 1 15 1·8 | +1040·8 |
| | Moon I. L. | - - | 0 3 15·58 | 131·14 | 67·45 | N. 2 14 56·5 | +1056·6 |
| | ω Piscium * | 4.5 | 23 51 6·32 | | | 5 58 | |
| | d Piscium * | 5.6 | 0 12 22·83 | | | N. 7 18 | |
| 17 | ω Piscium * | 4.5 | 23 51 6·31 | | | N. 5 58 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. ☾'s D in 1 h of Lo |
|---|---|---|---|---|---|---|---|
| 1839. | | | h m s | s | s | ° ′ ″ | |
| Nov. 17 | *d* Piscium * | 5.6 | 0 12 22 ·83 | | | N. 7 18 | |
| | Moon I. U. | 11 ·6 | 0 29 48 ·11 | 134 ·44 | 68 ·29 | 5 46 37 ·1 | +105 |
| | Moon I. L. | - - | 0 57 5 ·97 | 138 ·70 | 69 ·37 | 9 16 47 ·4 | 104 |
| | ε Piscium * | 4 | 0 54 39 ·58 | | | N. 7 1 | |
| 18 | ε Piscium * | 4 | 0 54 39 ·58 | | | N. 7 1 | |
| | Moon I. U. | 12 ·6 | 1 25 20 ·34 | 143 ·84 | 70 ·66 | 12 41 48 ·6 | +100 |
| | Moon I. L. | - - | 1 54 41 ·14 | 149 ·74 | 72 ·12 | 15 57 34 ·5 | 9 |
| | β Arietis - - | 3 | 1 45 49 ·70 | | | 20 1 | |
| | $\theta^1$ Arietis - - | 6 | 2 9 15 ·30 | | | N. 19 9 | |
| 19 | β Arietis - - | 3 | 1 45 49 ·70 | | | N. 20 1 | |
| | $\theta^1$ Arietis - - | 6 | 2 9 15 ·31 | | | 19 9 | |
| | Moon I. U. | 13 ·6 | 2 25 16 ·03 | 156 ·14 | 73 ·69 | 18 59 34 ·5 | + 8 |
| | Moon I. L. | - - | 2 57 8 ·72 | 162 ·63 | 75 ·26 | 21 43 2 ·8 | 7 |
| | ε Arietis - - | 5 | 2 50 5 ·60 | | | 20 42 | |
| | δ Arietis - - | 4 | 3 2 30 ·43 | | | N. 19 7 | |
| 20 | ε Arietis - - | 5 | 2 50 5 ·60 | | | N. 20 42 | |
| | δ Arietis - - | 4 | 3 2 30 ·43 | | | 19 7 | |
| | Moon I. U. | 14 ·7 | 3 30 17 ·36 | 168 ·68 | 76 ·70 | 24 3 11 ·6 | + 6 |
| | $A^1$ Tauri - - | 5 | 3 55 15 ·84 | | | 21 38 | |
| | $\upsilon^1$ Tauri - - | 5 | 4 16 45 ·37 | | | N. 22 27 | |
| 21 | $A^1$ Tauri - - | 5 | 3 55 15 ·85 | | | N. 21 38 | |
| | $\upsilon^1$ Tauri - - | 5 | 4 16 45 ·38 | | | 22 27 | |
| | Moon II. L. | - - | 4 7 8 ·57 | 173 ·82 | 77 ·88 | 25 55 36 ·4 | + 4 |
| | Moon II. U. | 15 ·7 | 4 42 15 ·55 | 176 ·99 | 78 ·65 | 27 16 38 ·3 | 2 |
| | β Tauri - - | 2 | 5 16 12 ·23 | | | 28 28 | |
| | *l* Aurigæ - | 5 | 5 28 23 ·02 | | | N. 30 23 | |
| 22 | β Tauri - - | 2 | 5 16 12 ·25 | | | N. 28 28 | |
| | *l* Aurigæ - | 5 | 5 28 23 ·04 | | | 30 23 | |
| | Moon II. L. | - - | 5 17 47 ·43 | 177 ·91 | 78 ·90 | 28 3 52 ·6 | + 1 |
| | Moon II. U. | 16 ·8 | 5 53 15 ·80 | 176 ·38 | 78 ·61 | 28 16 28 ·0 | − |
| | κ Aurigæ - | 4 | 6 5 12 ·25 | | | 29 33 | |
| | ε Geminor. | 3 | 6 34 6 ·33 | | | N. 25 17 | |
| 23 | κ Aurigæ - | 4 | 6 5 12 ·28 | | | N. 29 33 | |
| | ε Geminor. | 3 | 6 34 6 ·36 | | | 25 17 | |
| | Moon II. L. | - - | 6 28 11 ·50 | 172 ·54 | 77 ·76 | 27 55 10 ·5 | − 18 |
| | Moon II. U. | 17 ·8 | 7 2 9 ·27 | 166 ·82 | 76 ·46 | 27 2 15 ·1 | 33 |
| | $\alpha^2$ Geminor. | 3 | 7 24 24 ·16 | | | 32 14 | |
| | β Geminor. | 2 | 7 35 32 ·13 | | | N. 28 25 | |
| 24 | $\alpha^2$ Geminor. | 3 | 7 24 24 ·20 | | | N. 32 14 | |
| | β Geminor. | 2 | 7 35 32 ·16 | | | 28 25 | |
| | Moon II. L. | - - | 7 34 50 ·11 | 159 ·84 | 74 ·82 | 25 41 1 ·9 | − 4 |
| | Moon II. U. | 18 ·9 | 8 6 3 ·04 | 152 ·26 | 73 ·00 | 23 55 27 ·6 | − 5 |
| | η Cancri - - | 6 | 8 23 27 ·60 | | | N. 20 59 | |

| | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 1839. | | | h m s | s | s | ° ′ ″ | ″ |
| Nov. 24 | δ Cancri - - | 4.5 | 8 35 35 ·75 | | | N.18 45 | |
| 25 | η Cancri - - | 6 | 8 23 27 ·63 | | | N.20 59 | |
| | δ Cancri - - | 4.5 | 8 35 35 ·78 | | | 18 45 | |
| | Moon II. L. | - - | 8 35 44 ·21 | 144 ·64 | 71 ·11 | 21 49 38 ·8 | —672 ·9 |
| | Moon II. U. | 19 ·9 | 9 3 55 ·94 | 137 ·41 | 69 ·27 | 19 27 33 ·7 | 744 ·9 |
| | λ Leonis - - | 4.5 | 9 22 35 ·42 | | | 23 40 | |
| | ο Leonis - * | 4 | 9 32 36 ·81 | | | N.10 37 | |
| 26 | λ Leonis - - | 4.5 | 9 22 35 ·46 | | | N.23 40 | |
| | ο Leonis - * | 4 | 9 32 36 ·84 | | | 10 37 | |
| | Moon II. L. | - - | 9 30 44 ·57 | 130 ·84 | 67 ·54 | 16 52 49 ·0 | —799 ·9 |
| | Moon II. U. | 20 ·9 | 9 56 19 ·27 | 125 ·10 | 66 ·00 | 14 8 34 ·4 | 840 ·2 |
| | γ Leonis - - | 2 | 10 11 8 ·62 | | | 20 39 | |
| | ρ Leonis - * | 4 | 10 24 23 ·01 | | | N.10 8 | |
| 27 | γ Leonis - - | 2 | 10 11 8 ·66 | | | N.20 39 | |
| | ρ Leonis - * | 4 | 10 24 23 ·04 | | | 10 8 | |
| | Moon II. L. | - - | 10 20 50 ·45 | 120 ·26 | 64 ·67 | 11 17 33 ·3 | —868 ·1 |
| | Moon II. U. | 22 ·0 | 10 44 29 ·17 | 116 ·35 | 63 ·57 | 8 22 3 ·1 | 885 ·4 |
| | χ Leonis - * | 4.5 | 10 56 45 ·53 | | | 8 12 | |
| | σ Leonis - * | 4 | 11 12 52 ·68 | | | N. 6 55 | |
| 28 | χ Leonis - * | 4.5 | 10 56 45 ·57 | | | N. 8 12 | |
| | σ Leonis - * | 4 | 11 12 52 ·72 | | | 6 55 | |
| | Moon II. L. | - - | 11 7 26 ·41 | 113 ·34 | 62 ·70 | 5 24 0 ·9 | —893 ·6 |
| | Moon II. U. | 23 ·0 | 11 29 52 ·89 | 111 ·21 | 62 ·07 | 2 25 8 ·5 | 894 ·0 |
| | β Virginis - | 3.4 | 11 42 21 ·48 | | | 2 40 | |
| | ο Virginis * | 4.5 | 11 57 3 ·18 | | | N. 9 38 | |
| 29 | β Virginis - | 3.4 | 11 42 21 ·51 | | | N. 2 40 | |
| | ο Virginis * | 4.5 | 11 57 3 ·21 | | | N. 9 38 | |
| | Moon II. L. | - - | 11 51 58 ·85 | 109 ·92 | 61 ·67 | S. 0 33 6 ·1 | —887 ·4 |
| | Moon II. U. | 24 ·0 | 12 13 54 ·04 | 109 ·41 | 61 ·49 | 3 29 22 ·2 | 874 ·2 |
| | $\gamma^1$ Virginis - | 4 | 12 33 32 ·57 | | | 0 34 | |
| | ψ Virginis - | 5.6 | 12 46 1 ·71 | | | S. 8 40 | |
| 30 | $\gamma^1$ Virginis - | 4 | 12 33 32 ·60 | | | S. 0 34 | |
| | ψ Virginis - | 5.6 | 12 46 1 ·74 | | | 8 40 | |
| | Moon II. L. | - - | 12 35 47 ·69 | 109 ·65 | 61 ·52 | 6 22 22 ·7 | —854 ·9 |
| | Moon II. U. | 25 ·0 | 12 57 48 ·54 | 110 ·60 | 61 ·76 | 9 10 53 ·2 | 829 ·2 |
| | α Virginis - | 1 | 13 16 45 ·42 | | | S. 10 19 | |
| Dec. 1 | Moon II. L. | - - | 13 20 4 ·75 | 112 ·21 | 62 ·18 | S.11 53 36 ·4 | —797 ·0 |
| | Moon II. U. | 26 ·1 | 13 42 43 ·87 | 114 ·40 | 62 ·77 | 14 29 13 ·1 | 757 ·9 |
| 2 | Moon II. L. | - - | 14 5 52 ·73 | 117 ·15 | 63 ·50 | S.16 56 17 ·2 | —711 ·5 |
| | Moon II. U. | 27 ·1 | 14 29 37 ·18 | 120 ·33 | 64 ·35 | 19 13 17 ·4 | 657 ·2 |
| 3 | Moon II. L. | - - | 14 54 1 ·82 | 123 ·82 | 65 ·28 | S.21 18 36 ·7 | —594 ·6 |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 1839. | | | h m s | s | s | ° ′ ″ | ″ |
| Dec. 3 | Moon II. U. | 28·1 | 15 19 9·62 | 127·50 | 66·25 | S. 23 10 33·0 | — 523·3 |
| 4 | Moon II. L. | - - | 15 45 1·67 | 131·16 | 67·20 | S. 24 47 21·3 | — 443·3 |
| | Moon II. U. | 29·2 | 16 11 36·65 | 134·61 | 68·11 | 26 7 17·6 | 354·8 |
| 5 | Moon II. L. | - - | 16 38 50·71 | 137·64 | 68·89 | S. 27 8 44·5 | — 258·5 |
| 6 | Moon I. U. | 0·4 | 17 4 18·36 | 139·93 | 69·52 | S. 27 50 15·2 | — 155·7 |
| | Moon I. L. | - - | 17 32 28·13 | 141·54 | 69·94 | 28 10 41·9 | — 48·1 |
| 7 | Moon I. U. | 1·4 | 18 0 51·83 | 142·24 | 70·13 | S. 28 9 19·4 | + 62·2 |
| | Moon I. L. | - - | 18 29 18·29 | 142·00 | 70·09 | 27 45 48·2 | 172·9 |
| 8 | Moon I. U. | 2·5 | 18 57 36·54 | 140·90 | 69·83 | S. 27 0 18·2 | + 281·6 |
| | Moon I. L. | - - | 19 25 36·94 | 139·06 | 69·38 | 25 53 25·0 | 386·4 |
| 9 | Moon I. U. | 3·5 | 19 53 11·84 | 136·69 | 68·80 | S. 24 26 7·9 | + 485·4 |
| | Moon I. L. | - - | 20 20 16·30 | 134·02 | 68·13 | 22 39 43·2 | 577·4 |
| 10 | π Capricorni | 5 | 20 18 8·66 | | | S. 18 44 | |
| | υ Capricorni | 5 | 20 30 55·53 | | | 18 42 | |
| | Moon I. U. | 4.5 | 20 46 48·06 | 131·28 | 67·44 | 20 35 41·6 | + 661·5 |
| | Moon I. L. | - - | 21 12 47·54 | 128·68 | 66·78 | 18 15 40·3 | 737·3 |
| | s Capricorni | 5 | 21 6 52·73 | | | 15 50 | |
| | γ Capricorni | 4 | 21 31 12·74 | | | S. 17 23 | |
| 11 | s Capricorni | 5 | 21 6 52·72 | | | S. 15 50 | |
| | γ Capricorni | 4 | 21 31 12·73 | | | 17 23 | |
| | Moon I. U. | 5·6 | 21 38 17·69 | 126·41 | 66·19 | 15 41 21·6 | + 804·4 |
| | Moon I. L. | - - | 22 3 23·35 | 124·63 | 65·73 | 12 54 29·8 | 862·8 |
| | ι Aquarii - | 4.5 | 21 57 47·18 | | | 14 39 | |
| | θ Aquarii - | 4.5 | 22 8 22·91 | | | S. 8 35 | |
| 12 | ι Aquarii - | 4.5 | 21 57 47·17 | | | S. 14 39 | |
| | θ Aquarii - | 4.5 | 22 8 22·89 | | | 8 35 | |
| | Moon I. U. | 6·6 | 22 28 11·18 | 123·46 | 65·43 | 9 56 50·1 | + 912·4 |
| | Moon I. L. | - - | 22 52 49·24 | 123·01 | 65·32 | 6 50 9·8 | 952·8 |
| | λ Aquarii - | 4 | 22 44 15·88 | | | 8 26 | |
| | φ Aquarii - | 5 | 23 6 2·27 | | | S. 6 55 | |
| 13 | λ Aquarii - | 4 | 22 44 15·87 | | | S. 8 26 | |
| | φ Aquarii - | 5 | 23 6 2·26 | | | 6 55 | |
| | Moon I. U. | 7·6 | 23 17 26·68 | 123·37 | 65·42 | 3 36 20·6 | + 983·5 |
| | Moon I. L. | - - | 23 42 13·54 | 124·60 | 65·76 | S. 0 17 19·7 | 1004·6 |
| | λ Piscium - | 5 | 23 33 53·46 | | | N. 0 54 | |
| | ω Piscium * | 4.5 | 23 51 6·07 | | | 5 58 | |
| 14 | λ Piscium - | 5 | 23 33 53·45 | | | N. 0 54 | |
| | ω Piscium * | 4.5 | 23 51 6·06 | | | 5 58 | |
| | Moon I. U. | 8·7 | 0 7 20·74 | 126·76 | 66·34 | N. 3 4 44·5 | +1014·7 |

| ate. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 339. | | | h m s | s | s | ° ′ ″ | ″ |
| .14 | Moon I. L. | - - | 0 32 59 ·70 | 129 ·90 | 67 ·17 | N. 6 27 27 ·9 | +1011 ·0 |
| | δ Piscium * | 5 | 0 40 23 ·73 | | | 6 42 | |
| 15 | δ Piscium * | 5 | 0 40 23 ·72 | | | N. 6 42 | |
| | Moon I. U. | 9 ·7 | 0 59 22 ·15 | 134 ·01 | 68 ·25 | 9 48 10 ·5 | + 993 ·6 |
| | Moon I. L. | - - | 1 26 39 ·78 | 139 ·08 | 69 ·54 | 13 3 48 ·3 | 959 ·8 |
| | η Piscium - | 4 | 1 22 56 ·61 | | | 14 31 | |
| | ο Piscium * | 5 | 1 36 57 ·83 | | | N. 8 21 | |
| 16 | η Piscium - | 4 | 1 22 56 ·60 | | | N.14 31 | |
| | ο Piscium * | 5 | 1 36 57 ·82 | | | 8 21 | |
| | Moon I. U. | 10 ·7 | 1 55 3 ·52 | 145 ·01 | 71 ·03 | 16 10 50 ·3 | + 907 ·3 |
| | Moon I. L. | - - | 2 24 42 ·48 | 151 ·58 | 72 ·64 | 19 5 20 ·7 | 834 ·1 |
| | ν Arietis - - | 5.6 | 2 29 45 ·28 | | | 21 16 | |
| | π Arietis - - | 5 | 2 40 23 ·63 | | | N.16 47 | |
| 17 | ν Arietis - - | 5.6 | 2 29 45 ·28 | | | N.21 16 | |
| | π Arietis - - | 5 | 2 40 23 ·63 | | | 16 47 | |
| | Moon I. U. | 11 ·8 | 2 55 42 ·54 | 158 ·46 | 74 ·30 | 21 43 1 ·5 | + 738 ·8 |
| | Moon I. L. | - - | 3 28 4 ·71 | 165 ·17 | 75 ·88 | 23 59 22 ·3 | 620 ·8 |
| | g Arietis - - | 5.6 | 3 14 53 ·43 | | | 24 9 | |
| | η Tauri - - | 3 | 3 38 0 ·41 | | | N.23 36 | |
| 18 | g Arietis - - | 5.6 | 3 14 53 ·44 | | | N.24 9 | |
| | η Tauri - - | 3 | 3 38 0 ·41 | | | 23 36 | |
| | Moon I. U. | 12 ·8 | 4 1 43 ·36 | 171 ·08 | 77 ·25 | 25 49 56 ·7 | + 481 ·4 |
| | Moon I. L. | - - | 4 36 24 ·83 | 175 ·52 | 78 ·26 | 27 10 47 ·2 | 324 ·3 |
| | τ Tauri - - | 5 | 4 32 40 ·48 | | | 22 39 | |
| | ι Tauri - - | 4.5 | 4 53 33 ·84 | | | N.21 21 | |
| 19 | τ Tauri - - | 5 | 4 32 40 ·48 | | | N.22 39 | |
| | ι Tauri - - | 4.5 | 4 53 33 ·85 | | | 21 21 | |
| | Moon I. U. | 13 ·9 | 5 11 47 ·74 | 177 ·88 | 78 ·78 | 27 58 53 ·9 | + 155 ·3 |
| | Moon I. L. | - - | 5 47 24 ·41 | 177 ·78 | 78 ·75 | 28 12 37 ·8 | — 17 ·9 |
| | C Tauri - - | 4.5 | 5 43 18 ·17 | | | 27 34 | |
| | κ Aurigæ - | 4 | 6 5 12 ·86 | | | N.29 33 | |
| 20 | C Tauri - - | 4.5 | 5 43 18 ·18 | | | N.27 34 | |
| | κ Aurigæ - | 4 | 6 5 12 ·87 | | | 29 33 | |
| | Moon II. U. | 14 ·9 | 6 25 21 ·00 | 175 ·04 | 78 ·15 | 27 52 0 ·1 | — 186 ·9 |
| | τ Geminor. | 5 | 7 0 58 ·85 | | | 30 30 | |
| | δ Geminor. | 3.4 | 7 10 35 ·56 | | | N.22 16 | |
| 21 | τ Geminor. | 5 | 7 0 58 ·87 | | | N.30 30 | |
| | δ Geminor. | 3.4 | 7 10 35 ·59 | | | 22 16 | |
| | Moon II. L. | - - | 6 59 54 ·28 | 170 ·18 | 77 ·03 | 26 58 37 ·5 | — 344 ·2 |
| | Moon II. U. | 16 ·0 | 7 33 19 ·00 | 163 ·73 | 75 ·53 | 25 35 28 ·4 | — 483 ·9 |
| | λ Cancri - - | 6 | 8 11 2 ·08 | | | 24 31 | |
| | θ Cancri - - | 5.6 | 8 22 29 ·51 | | | N.18 38 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Va ☾'s in 1 of L |
|---|---|---|---|---|---|---|---|
| 1839. | | | h m s | s | s | ° ′ ″ | |
| Dec. 22 | λ Cancri - - | 6 | 8 11 2 ·10 | | | N.24 31 | |
| | θ Cancri - - | 5.6 | 8 22 29 ·53 | | | 18 38 | |
| | Moon II. L. | - - | 8 5 20 ·17 | 156 ·37 | 73 ·78 | 23 46 25 ·2 | —6 |
| | Moon II. U. | 17 ·0 | 8 35 50 ·67 | 148 ·72 | 71 ·93 | 21 35 46 ·2 | 7 |
| | ξ Cancri - - | 5.6 | 9 0 10 ·49 | | | 22 42 | |
| | q Cancri - - | 6 | 9 10 3 ·84 | | | N.18 23 | |
| 23 | ξ Cancri - - | 5.6 | 9 0 10 ·52 | | | N.22 42 | |
| | q Cancri - - | 6 | 9 10 3 ·87 | | | 18 23 | |
| | Moon II. L. | - - | 9 4 50 ·28 | 141 ·29 | 70 ·09 | 19 7 49 ·0 | —7 |
| | Moon II. U. | 18 ·0 | 9 32 23 ·91 | 134 ·43 | 68 ·34 | 16 26 35 ·5 | 8 |
| | α Leonis - * | 1 | 9 59 52 ·07 | | | 12 45 | |
| | γ Leonis - - | 2 | 10 11 9 ·57 | | | N.20 39 | |
| 24 | α Leonis - * | 1 | 9 59 52 ·10 | | | N.12 45 | |
| | γ Leonis - - | 2 | 10 11 9 ·60 | | | 20 39 | |
| | Moon II. L. | - - | 9 58 39 ·79 | 128 ·36 | 66 ·76 | 13 35 40 ·9 | —8 |
| | Moon II. U. | 19 ·1 | 10 23 48 ·21 | 123 ·19 | 65 ·38 | 10 38 12 ·0 | 8 |
| | l Leonis - * | 6 | 10 40 51 ·29 | | | 11 24 | |
| | χ Leonis - * | 4.5 | 10 56 46 ·45 | | | N. 8 12 | |
| 25 | l Leonis - * | 6 | 10 40 51 ·32 | | | N.11 24 | |
| | χ Leonis - * | 4.5 | 10 56 46 ·48 | | | 8 12 | |
| | Moon II. L. | - - | 10 48 0 ·18 | 118 ·96 | 64 ·24 | 7 36 46 ·9 | —91 |
| | Moon II. U. | 20 ·1 | 11 11 27 ·01 | 115 ·66 | 63 ·34 | 4 33 38 ·2 | 91 |
| | υ Leonis - - | 4.5 | 11 28 45 ·07 | | | 0 4 | |
| | β Virginis - | 3.4 | 11 42 22 ·38 | | | N. 2 40 | |
| 26 | υ Leonis - - | 4.5 | 11 28 45 ·10 | | | N. 0 4 | |
| | β Virginis - | 3.4 | 11 42 22 ·42 | | | 2 40 | |
| | Moon II. L. | - - | 11 34 19 ·73 | 113 ·27 | 62 ·66 | N. 1 30 37 ·9 | —91 |
| | Moon II. U. | 21 ·1 | 11 56 49 ·02 | 111 ·75 | 62 ·23 | S. 1 30 37 ·2 | 89 |
| | η Virginis - | 3.4 | 12 11 43 ·59 | | | N. 0 14 | |
| | q Virginis - | 5.6 | 12 25 31 ·71 | | | S. 8 34 | |
| 27 | η Virginis - | 3.4 | 12 11 43 ·63 | | | N. 0 14 | |
| | q Virginis - | 5.6 | 12 25 31 ·74 | | | S. 8 34 | |
| | Moon II. L. | - - | 12 19 5 ·02 | 111 ·05 | 62 ·03 | 4 28 43 ·3 | —88 |
| | Moon II. U. | 22 ·2 | 12 41 17 ·39 | 111 ·14 | 62 ·05 | 7 22 24 ·0 | 83 |
| | g Virginis - | 5.6 | 12 59 31 ·40 | | | 9 53 | |
| | α Virginis - | 1 | 13 16 46 ·28 | | | S.10 19 | |
| 28 | g Virginis - | 5.6 | 12 59 31 ·43 | | | S. 9 53 | |
| | α Virginis - | 1 | 13 16 46 ·31 | | | 10 19 | |
| | Moon II. L. | - - | 13 3 35 ·22 | 111 ·95 | 62 ·27 | 10 10 26 ·0 | —82 |
| | Moon II. U. | 23 ·2 | 13 26 7 ·03 | 113 ·46 | 62 ·67 | 12 51 36 ·5 | 78 |
| | x Virginis - | 5.6 | 13 41 10 ·91 | | | S.17 20 | |
| 29 | x Virginis - | 5.6 | 13 41 10 ·94 | | | S.17 20 | |
| | Moon II. L. | - - | 13 49 0 ·78 | 115 ·60 | 63 ·26 | S.15 24 40 ·8 | —74 |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 1839. | | | h m s | s | s | ° ′ ″ | ″ |
| Dec. 29 | Moon II. U. | 24·2 | 14 12 23·57 | 118·29 | 63·99 | S. 17 48 19·8 | —692·4 |
| | $\alpha^2$ Libræ - - | 3 | 14 42 1·94 | | | 15 22 | |
| | 20 Libræ - - | 3.4 | 14 54 42·91 | | | S. 24 39 | |
| 30 | $\alpha^2$ Libræ - - | 3 | 14 42 1·98 | | | S. 15 22 | |
| | 20 Libræ - - | 3.4 | 14 54 42·94 | | | 24 39 | |
| | Moon II. L. | - - | 14 36 21·61 | 121·45 | 64·85 | 20 1 8·0 | —634·4 |
| | Moon II. U. | 25·2 | 15 0 59·71 | 124·95 | 65·75 | 22 1 34·2 | 568·6 |
| | $\chi$ Libræ - - | 5.6 | 15 30 48·39 | | | 23 17 | |
| | $b$ Scorpii - | 5 | 15 41 21·30 | | | S. 25 15 | |
| 31 | Moon II. L. | - - | 15 26 21·21 | 128·65 | 66·71 | S. 23 48 1·3 | —494·5 |
| | Moon II. U. | 26·3 | 15 52 27·32 | 132·35 | 67·66 | S. 25 18 49·0 | —412·0 |

## OCCULTATIONS OF PLANETS AND FIXED STARS BY THE MO

VISIBLE AT GREENWICH.

| Day of the Month. | Star's Name. | Magnitude. | Immersion. | | | | Emersion. | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Sidereal Time. | Mean Time. | Angle from N. Point. | Angle from Vertex. | Sidereal Time. | Mean Time. | Angle N. Point. |
| | | | h m | h m | ° | ° | h m | h m | ° |
| Jan. 7 | 58 Virginis - - | 6 | 7 28‡ | 12 20 | 80 | 42 | 8 26 | 13 19 | 216 |
| 9 | Libræ - - - | 6 | 13 10 | 17 54 | 131 | 115 | 13 36 | 18 19 | 168 |
| 10 | 1 Scorpii - - - | 5 | 15 10 | 19 49 | 27 | 22 | 16 12 | 20 51 | 288 |
| 22 | ψ Arietis - - - | 6 | 8 46† | 12 39 | 17 | 56 | | | |
| 24 | χ Tauri - - - | 6 | 7 8† | 10 54 | 9 | 48 | | | |
| 26 | c Aurigæ - - - | 6 | 11 39† | 15 16 | 168 | 213 | | | |
| 30 | 34 Leonis - - - | 6 | 11 53† | 15 15 | 145 | 170 | | | |
| Feb. 1 | H Leonis - - - | 6 | 6 58 | 10 12 | 111 | 75 | 7 39 | 10 53 | 183 |
| 3 | 50 Virginis - - | 6 | 15 13 | 18 18 | 86 | 107 | 16 20 | 19 25 | 209 |
| 19 | 47 Arietis - - - | 6 | 2 31 | 4 36 | 116 | 111 | 3 45 | 5 49 | 298 |
| 23 | 47 Geminorum - | 6 | 9 15 | 11 2 | 53 | 89 | 10 21 | 12 8 | 275 |
| 28 | τ Leonis - - - | 4 | 15 30 | 16 57 | 357 | 33 | 16 4 | 17 31 | 295 |
| Mar. 4 | Virginis - - | 6 | 11 52† | 13 4 | 326 | 305 | | | |
| 6 | π Scorpii - - - | 3.4 | 14 54 | 15 57 | 126 | 117 | 15 38 | 16 41 | 191 |
| 19 | b Pleiadum - - | 4.5 | 7 53 | 8 6 | 86 | 129 | 8 51 | 9 4 | 295 |
| 19 | g Pleiadum - - | 5.6 | 7 56 | 8 9 | 124 | 167 | 8 52 | 9 5 | 257 |
| 19 | c Pleiadum - - | 5 | 8 25 | 8 39 | 132 | 175 | 9 15 | 9 28 | 248 |
| 19 | e Pleiadum - - | 5 | 8 31 | 8 44 | 178 | 220 | 8 44 | 8 57 | 203 |
| 19 | d Pleiadum - - | 5 | 8 56† | 9 9 | 10 | 52 | | | |
| 19 | η Tauri - - - | 3 | 9 4 | 9 17 | 59 | 101 | 9 47 | 10 0 | 320 |
| 19 | h Pleiadum - - | 5.6 | 9 47 | 10 0 | 50 | 91 | 10 23 | 10 36 | 327 |
| 19 | f Pleiadum - - | 5 | 10 4† | 10 17 | 9 | 49 | | | |
| Apr. 3 | τ Scorpii - - - | 3.4 | 16 37 | 15 50 | 42 | 44 | 17 47 | 17 0 | 291 |
| 6 | p Sagittarii - - | 6 | 15 57‡ | 14 58 | 102 | 74 | 17 12 | 16 13 | 268 |
| 16 | χ Tauri - - - | 6 | 9 59† | 8 21 | 5 | 47 | | | |
| 18 | c Aurigæ - - - | 6 | 11 45† | 9 59 | 168 | 212 | | | |
| 22 | 34 Leonis - - - | 6 | 12 30† | 10 29 | 145 | 176 | | | |
| 26 | 50 Virginis - - | 6 | 17 18 | 15 0 | 136 | 171 | 17 36 | 15 18 | 168 |
| May 2 | γ¹ Sagittarii - - | 5 | 14 19‡ | 11 38 | 23 | 352 | 14 56§ | 12 15 | 321 |
| 16 | 47 Geminorum - | 6 | 12 46† | 9 11 | 165 | 207 | | | |
| 21 | τ Leonis - - - | 4 | 15 9 | 11 14 | 58 | 92 | 16 16 | 12 20 | 236 |
| 25 | Virginis - - | 6 | 12 16† | 8 5 | 326 | 308 | | | |
| 27 | π Scorpii - - - | 3.4 | 14 42 | 10 23 | 83 | 72 | 16 2 | 11 42 | 235 |

## CULTATIONS OF PLANETS AND FIXED STARS BY THE MOON,

VISIBLE AT GREENWICH.

| Day the nth. | Star's Name. | Magnitude. | Immersion. Sidereal Time. | Immersion. Mean Time. | Immersion. Angle from N. Point. | Immersion. Angle from Vertex. | Emersion. Sidereal Time. | Emersion. Mean Time. | Emersion. Angle from N. Point. | Emersion. Angle from Vertex. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | h m | h m | ° | ° | h m | h m | ° | ° |
| ne 30 | 42 Aquarii - - | 6 | 23 5† | 16 31 | 215 | 224 | | | | |
| ly 1 | 83 Aquarii - - | 6 | 21 11† | 14 33 | 36 | 18 | | | | |
| 1 | $\phi$ Aquarii - - | 5 | 3 20† | 20 41 | 33 | 67 | | | | |
| 14 | VENUS - - - | - | 9 11† | 1 44 | 143 | 124 | | | | |
| 23 | $\gamma^1$ Sagittarii - - | 5 | 16 24 | 8 21 | 34 | 20 | 17 13 | 9 9 | 321 | 315 |
| ug. 24 | 58 Aquarii - - | 6 | 0 41 | 14 30 | 179 | 201 | 1 20 | 15 9 | 252 | 278 |
| 25 | $\phi$ Aquarii - - | 5 | 18 34 | 8 20 | 124 | 89 | 19 36 | 9 23 | 297 | 266 |
| 25 | GEORGIAN - | - | 18 59 | 8 45 | 179 | 145 | 19 31 | 9 17 | 242 | 210 |
| 25 | 96 Aquarii - - | 6 | 21 43 | 11 29 | 142 | 126 | 22 51 | 12 37 | 292 | 289 |
| 29 | 47 Arietis - - - | 6 | 0 25† | 13 55 | 29 | 356 | | | | |
| 29 | $\epsilon$ Arietis - - - | 5 | 1 0 | 14 30 | 146 | 118 | 2 2 | 15 31 | 271 | 257 |
| 30 | *b* Pleiadum - - | 4.5 | 19 4‡ | 8 31 | 134 | 104 | 19 46 | 9 13 | 262 | 228 |
| 30 | *g* Pleiadum - - | 5.6 | 19 28† | 8 54 | 198 | 166 | | | | |
| 30 | *d* Pleiadum - - | 5 | 19 28 | 8 55 | 78 | 46 | 20 9 | 9 36 | 319 | 283 |
| 30 | *c* Pleiadum - - | 5 | 19 49† | 9 16 | 198 | 164 | | | | |
| 30 | $\eta$ Tauri - - - | 3 | 19 52 | 9 19 | 94 | 60 | 20 39 | 10 5 | 304 | 266 |
| 30 | *h* Pleiadum - - | 5.6 | 20 30 | 9 56 | 74 | 37 | 21 10 | 10 36 | 326 | 286 |
| 30 | *f* Pleiadum - - | 5 | 20 35 | 10 2 | 48 | 11 | 20 59 | 10 25 | 352 | 313 |
| ept. 1 | 136 Tauri - - - | 4.5 | 20 46‡ | 10 5 | 54 | 27 | 21 21 | 10 40 | 317 | 286 |
| 19 | $\chi^3$ Capricorni - | 6 | 22 13 | 10 20 | 57 | 68 | 22 44 | 10 51 | 5 | 21 |
| 20 | $\iota$ Aquarii - - | 4.5 | 1 12 | 13 15 | 191 | 219 | 1 36 | 13 39 | 236 | 267 |
| 21 | 81 Aquarii - - | 6 | 2 32 | 14 31 | 153 | 184 | 3 25 | 15 24 | 274 | 310 |
| 23 | 60 Piscium - - | 6 | 3 17† | 15 8 | 33 | 61 | | | | |
| 23 | 62 Piscium - - | 6 | 3 41 | 15 32 | 136 | 167 | 4 42 | 16 33 | 286 | 323 |
| 23 | $\delta$ Piscium - - | 5 | 4 30 | 16 20 | 195 | 230 | 4 47 | 16 38 | 227 | 264 |
| 25 | $\mu$ Arietis - - - | 6 | 4 12 | 15 55 | 130 | 155 | 5 18 | 17 1 | 277 | 312 |
| 26 | *g* Pleiadum - - | 5.6 | 4 47 | 16 25 | 48 | 70 | 5 24 | 17 2 | 345 | 15 |
| 26 | *e* Pleiadum - - | 5 | 4 49 | 16 28 | 87 | 109 | 5 56 | 17 35 | 305 | 340 |
| 26 | *b* Pleiadum - - | 4.5 | 5 8† | 16 47 | 16 | 43 | | | | |
| 26 | *c* Pleiadum - - | 5 | 5 17 | 16 56 | 51 | 79 | 5 58 | 17 37 | 339 | 14 |
| ct. 1 | $\gamma$ Cancri - - - | 5 | 1 35† | 12 55 | 169 | 131 | | | | |
| 17 | $\gamma$ Capricorni - | 4 | 0 59† | 11 16 | 212 | 242 | | | | |
| 18 | 58 Aquarii - - | 6 | 0 37 | 10 50 | 156 | 178 | 1 35 | 11 48 | 275 | 303 |

## OCCULTATIONS OF PLANETS AND FIXED STARS BY THE M

VISIBLE AT GREENWICH.

| Day of the Month. | Star's Name. | Magnitude. | Immersion. Sidereal Time. | Immersion. Mean Time. | Immersion. Angle from N. Point. | Immersion. Angle from Vertex. | Emersion. Sidereal Time. | Emersion. Mean Time. | Emersion. Ang N. Poin |
|---|---|---|---|---|---|---|---|---|---|
| | | | h m | h m | ° | ° | h m | h m | |
| Oct. 19 | $\phi$ Aquarii - - | 5 | 18 54 | 5 4 | 111 | 77 | 19 57 | 6 7 | 31 |
| 19 | 96 Aquarii - - | 6 | 22 1 | 8 11 | 129 | 117 | 23 12 | 9 21 | 30 |
| 23 | 47 Arietis - - - | 6 | 20 38 | 6 32 | 118 | 79 | 21 29 | 7 23 | 29 |
| 29 | $q$ Cancri - - - | 6 | 1 36 | 11 6 | 43 | 8 | 2 22 | 11 52 | 28 |
| 31 | 59 Leonis - - - | 5.6 | 5 41 | 15 2 | 37 | 358 | 6 40 | 16 1 | 26 |
| Nov. 14 | $\iota$ Aquarii - - | 4.5 | 22 27 | 6 54 | 150 | 155 | 23 34 | 8 1 | 28 |
| 15 | 81 Aquarii - - | 6 | 1 56 | 10 19 | 101 | 129 | 2 55 | 11 17 | 32 |
| 15 | 82 Aquarii - - | 6 | 2 59 | 11 22 | 156 | 190 | 3 51 | 12 13 | 27 |
| 15 | GEORGIAN - | - | 4 20† | 12 42 | 30 | 68 | | | |
| 17 | 62 Piscium - - | 6 | 5 17 | 13 31 | 102 | 139 | 6 12 | 14 26 | 31 |
| 17 | $\delta$ Piscium - - | 5 | 5 43 | 13 57 | 147 | 185 | 6 32 | 14 47 | 26 |
| 19 | $\mu$ Arietis - - - | 6 | 5 39 | 13 46 | 139 | 175 | 6 35 | 14 41 | 26 |
| 20 | $g$ Pleiadum - - | 5.6 | 4 48 | 12 51 | 90 | 112 | 5 54 | 13 56 | 30 |
| 20 | $b$ Pleiadum - - | 4.5 | 5 1 | 13 4 | 43 | 68 | 5 33 | 13 36 | 34 |
| 20 | $e$ Pleiadum - - | 5 | 5 4 | 13 7 | 120 | 145 | 6 10 | 14 13 | 27 |
| 20 | $c$ Pleiadum - - | 5 | 5 18 | 13 20 | 92 | 120 | 6 24 | 14 26 | 29 |
| 20 | $\eta$ Tauri - - - | 3 | 6 34† | 14 36 | 12 | 51 | | | |
| 22 | 136 Tauri - - - | 4.5 | 1 29 | 9 24 | 62 | 17 | 2 18 | 10 13 | 31 |
| Dec. 1 | 85 Virginis - - | 6 | 10 32† | 17 51 | 326 | 299 | | | |
| 10 | $\eta$ Capricorni - | 5 | 0 54 | 7 39 | 126 | 159 | 1 57‡ | 8 41 | 29 |
| 17 | 47 Arietis - - - | 6 | 22 20 | 4 38 | 68 | 27 | 22 59 | 5 16 | 34 |
| 17 | $\varepsilon$ Arietis - - - | 5 | 23 29 | 5 46 | 190 | 151 | 23 47 | 6 4 | 22 |
| 21 | A Geminorum - | 6 | 23 40† | 5 41 | 356 | 322 | | | |
| 21 | $\kappa$ Geminorum - | 4 | 8 37 | 14 37 | 35 | 54 | 9 34 | 15 33 | 28 |
| 24 | 45 Leonis - - - | 6 | 7 19 | 13 8 | 55 | 22 | 8 32 | 14 20 | 24 |
| 24 | $\rho$ Leonis - - - | 4 | 11 8† | 16 56 | 144 | 153 | | | |
| 24 | 49 Leonis - - - | 6 | 12 27 | 18 15 | 87 | 111 | 13 26 | 19 14 | 20 |
| 31 | $\pi$ Scorpii - - - | 3.4 | 14 10† | 19 30 | 158 | 143 | | | |

‡ Star below the horizon.

† A near approach.

§ Star rising.

## ELEMENTS

for facilitating the Computation of Occultations of certain Stars by the Moon.

| Day of the Month. | Star's Name. | Magnitude. | Greenwich *Mean Time* of *Apparent* ☉ in R. A. of ☾ and ✱. | At Greenwich Mean Time of ☉ | | | Limiting Parallels. |
|---|---|---|---|---|---|---|---|
| | | | | *Apparent* R. A. of ☾ and ✱. | *Apparent* Declination of ✱. | Diff. of *Apparent* Dec. of ☾ and ✱. | |
| | | | h m s | h m s | ° ′ ″ | ☾ ′ ″ | Latitude. ° ° |
| an. 1 | γ Cancri - | 5 | 11 38 59 | 8 33 59·11 | N.22 2 36·0 | N.51 52 | 90 N. 18 N. |
| 4 | χ Leonis - | 4.5 | 10 59 35 | 10 56 43·34 | 8 12 16·7 | N. 0 47 | 45 N. 42 S. |
| 4 | σ Leonis - | 4 | 19 57 25 | 11 12 50·83 | 6 54 37·1 | S.47 23 | 1 S. 83 S. |
| 5 | β Virginis - | 3.4 | 12 38 38 | 11 42 19·38 | N. 2 40 19·3 | S.29 44 | 17 N. 77 S. |
| 7 | 58 Virginis - | 6 | 14 12 0 | 13 9 1·40 | S. 9 41 43·7 | N.19 32 | 62 N. 26 S. |
| 7 | α Virginis - | 1 | 18 30 31 | 13 16 43·20 | 10 19 8·1 | S. 0 49 | 41 N. 45 S. |
| 9 | Libræ - | 6 | 18 48 25 | 14 48 1·22 | 20 39 58·2 | N.31 37 | 65 N. 13 S. |
| 10 | 1 Scorpii - | 5 | 20 12 54 | 15 41 17·70 | S.25 15 20·7 | N.63 48 | 65 N. 27 N. |
| 10 | 2 Scorpii - | 5 | 21 25 41 | 15 43 56·79 | S.24 50 25·3 | N.28 52 | 56 N. 16 S. |
| 10 | π Scorpii - | 3.4 | 23 46 40 | 15 49 6·71 | 25 38 38·4 | N.58 8 | 64 N. 18 N. |
| 11 | σ Scorpii - | 4 | 9 43 33 | 16 11 23·93 | 25 11 59·9 | S.41 34 | 13 S. 90 S. |
| 11 | α Scorpii - | 1 | 13 17 1 | 16 19 31·89 | S.26 4 9·5 | S.12 34 | 13 N. 58 S. |
| 12 | 3 Sagittarii | 5 | 21 48 58 | 17 37 24·57 | S.27 45 46·5 | S.39 3 | 19 S. 90 S. |
| 17 | ι Aquarii - | 4.5 | 8 34 9 | 21 57 43·40 | 14 38 58·8 | 32 1 | 11 N. 78 S. |
| 17 | σ Aquarii - | 5 | 19 34 50 | 22 22 6·72 | 11 30 4·4 | 53 38 | 7 S. 90 S. |
| 18 | λ Aquarii - | 4 | 5 44 42 | 22 44 12·14 | S. 8 26 10·2 | S.75 35 | 32 S. 90 S. |
| 18 | GEORGIAN - | | 7 18 38 | 22 47 34·40 | S. 8 29 26·5 | S.46 50 | 2 N. 90 S. |
| 18 | φ Aquarii - | 5 | 15 55 0 | 23 5 58·51 | S. 6 55 0·1 | N. 0 47 | 44 N. 44 S. |
| 20 | δ Piscium - | 5 | 12 49 52 | 0 40 19·89 | N. 6 42 30·6 | S.54 57 | 4 S. 83 S. |
| 20 | ε Piscium - | 4 | 19 35 14 | 0 54 35·56 | N. 7 1 21·3 | N.38 21 | 86 N. 10 S. |
| 22 | ψ Arietis - | 6 | 11 39 31 | 2 21 59·20 | N.16 59 30·4 | N.49 8 | 90 N. 7 N. |
| 22 | ε Arietis - | 5 | 23 53 6 | 2 50 1·55 | 20 41 41·8 | S.15 46 | 30 N. 47 S. |
| 23 | ζ Arietis - | 5 | 6 33 53 | 3 5 40·15 | 20 26 46·7 | N.77 38 | 90 N. 53 N. |
| 23 | *b* Pleiadum | 4.5 | 18 58 19 | 3 35 20·20 | N.23 36 17·9 | N.18 10 | 63 N. 13 S. |
| 23 | *e* Pleiadum | 5 | 19 6 3 | 3 35 38·93 | N.23 57 36·4 | S. 1 55 | 43 N. 31 S. |
| 23 | *c* Pleiadum | 5 | 19 21 26 | 3 36 16·20 | 23 51 44·3 | N. 6 24 | 51 N. 23 S. |
| 23 | *d* Pleiadum | 5 | 19 34 23 | 3 36 47·58 | 23 26 40·6 | 33 32 | 84 N. 0 |
| 23 | η Tauri - - | 3 | 20 2 40 | 3 37 56·25 | N.23 36 19·2 | N.28 21 | 76 N. 4 S. |
| 23 | *f* Pleiadum | 5 | 20 44 3 | 3 39 36·77 | N.23 33 32·1 | N.37 37 | 90 N. 4 N. |
| 24 | χ Tauri - - | 6 | 10 13 1 | 4 12 48·59 | 25 14 48·7 | N.48 19 | 90 N. 18 N. |
| 25 | β Tauri - | 2 | 11 15 9 | 5 16 8·58 | 28 28 6·0 | S.17 25 | 27 N. 34 S. |
| 25 | 136 Tauri - | 4.5 | 21 50 35 | 5 43 14·16 | N.27 34 12·6 | N.57 0 | 90 N. 38 N. |
| 26 | κ Aurigæ - | 4 | 6 25 30 | 6 5 8·87 | N.29 33 14·0 | S.60 14 | 21 S. 60 S. |
| 26 | *c* Aurigæ | 6 | 14 17 4 | 6 25 5·66 | 28 8 33·8 | N.14 35 | 60 N. 4 S. |
| 27 | 47 Geminor. | 6 | 4 48 44 | 7 1 25·24 | 27 6 59·5 | N.29 56 | 80 N. 6 N. |
| 27 | ι Geminor. | 4 | 10 39 8 | 7 15 45·22 | N.28 6 47·5 | S.58 12 | 18 S. 62 S. |

## ELEMENTS

for facilitating the Computation of Occultations of certain Stars by the Moon.

| Day of the Month. | Star's Name. | Magnitude. | Greenwich *Mean Time* of *Apparent* ♂ in R. A. of ☾ and ✱. | At Greenwich Mean Time of ♂ | | | Limiting Parallels |
|---|---|---|---|---|---|---|---|
| | | | | *Apparent* R. A. of ☾ and ✱. | *Apparent* Declination of ✱. | Diff. of *Apparent* Dec. of ☾ and ✱. | |
| | | | h m s | h m s | ° ′ ″ | ☾ ′ ″ | Latitude ° ′ |
| Jan. 27 | ν Geminor. | 5 | 14 53 6 | 7 26 1·62 | N.27 14 57·4 | S.30 14 | 15 N. 52 |
| 27 | φ Geminor. | 5 | 22 15 32 | 7 43 40·25 | 27 10 40·0 | S.73 51 | 58 S. 63 |
| 28 | γ Cancri - | 5 | 20 10 7 | 8 33 59·60 | 22 2 35·2 | N.49 7 | 90 N. 15 |
| 30 | 34 Leonis - | 6 | 14 59 8 | 10 2 59·73 | N.14 8 48·2 | N.24 13 | 70 N. 17 |
| 31 | χ Leonis - | 4.5 | 19 33 56 | 10 56 44·09 | N. 8 12 12·4 | S.10 33 | 35 N. 53 |
| Feb. 1 | σ Leonis - | 4 | 4 28 58 | 11 12 51·57 | 6 54 32·7 | S.59 32 | 15 S. 83 |
| 1 | τ Leonis - | 4 | 8 17 38 | 11 19 40·95 | 3 44 26·1 | N.76 6 | 90 N. 44 |
| 1 | H Leonis - | 6 | 11 55 22 | 11 26 8·77 | N. 3 57 10·9 | N.11 22 | 56 N. 33 |
| 1 | β Virginis - | 3.4 | 21 4 40 | 11 42 20·15 | N. 2 40 14·4 | S.43 11 | 4 N. 76 |
| 3 | 50 Virginis - | 6 | 18 9 1 | 13 1 21·04 | S. 9 28 21·9 | N.49 25 | 81 N. 4 |
| 4 | α Virginis - | 1 | 2 47 34 | 13 16 44·07 | 10 19 13·6 | S.16 9 | 27 N. 61 |
| 4 | 68 Virginis - | 5 | 3 37 59 | 13 18 14·35 | S.11 52 8·5 | N.65 35 | 78 N. 25 |
| 7 | 1 Scorpii - | 5 | 5 7 30 | 15 41 18·66 | S.25 15 23·8 | N.51 1 | 65 N. 9 |
| 7 | 2 Scorpii - | 5 | 6 21 19 | 15 43 57·74 | 24 50 28·4 | 16 9 | 43 N. 28 |
| 7 | π Scorpii - | 3.4 | 8 44 22 | 15 49 7·66 | 25 38 41·3 | N.45 35 | 64 N. 3 |
| 7 | σ Scorpii - | 4 | 18 50 13 | 16 11 24·89 | S.25 12 2·4 | S.53 25 | 27 S. 90 |
| 7 | α Scorpii - | 1 | 22 26 55 | 16 19 32·82 | S.26 4 11·7 | S.24 10 | 2 N. 73 |
| 8 | τ Scorpii - | 3.4 | 1 13 57 | 16 25 52·27 | 27 52 33·1 | N.67 41 | 62 N. 38 |
| 9 | 3 Sagittarii | 5 | 7 27 24 | 17 37 25·39 | 27 45 46·9 | S.47 58 | 29 S. 90 |
| 9 | γ¹ Sagittarii | 5 | 14 30 8 | 17 54 43·93 | S.29 34 50·8 | N.56 5 | 60 N. 16 |
| 9 | Sagittarii | 5 | 15 46 35 | 17 57 52·88 | S.28 28 4·7 | S.10 42 | 4 N. 56 |
| 10 | φ Sagittarii | 4.5 | 6 54 10 | 18 35 35·32 | 27 9 0·9 | S.68 49 | 52 S. 90 |
| 10 | τ Sagittarii | 4 | 15 22 55 | 18 56 52·69 | S.27 53 58·8 | N. 5 22 | 25 N. 39 |
| 16 | δ Piscium - | 5 | 19 59 41 | 0 40 19·65 | N. 6 42 29·0 | S.44 29 | 7 N. 81 |
| 17 | ε Piscium - | 4 | 2 32 42 | 0 54 35·30 | N. 7 1 19·7 | N.49 9 | 90 N. 1 |
| 19 | 47 Arietis - | 6 | 5 6 50 | 2 48 51·68 | 20 1 22·0 | N.29 51 | 77 N. 8 |
| 19 | ε Arietis - | 5 | 5 36 17 | 2 50 1·16 | 20 41 40·5 | S. 4 24 | 40 N. 37 |
| 20 | *b* Pleiadum | 4.5 | 0 28 12 | 3 35 19·81 | N.23 36 17·1 | N.28 58 | 77 N. 4 |
| 20 | *e* Pleiadum | 5 | 0 35 52 | 3 35 38·53 | N.23 57 35·6 | N. 8 54 | 53 N. 21 |
| 20 | *c* Pleiadum | 5 | 0 51 7 | 3 36 15·80 | 23 51 43·5 | 17 12 | 62 N. 14 |
| 20 | *d* Pleiadum | 5 | 1 3 58 | 3 36 47·19 | 23 26 39·8 | 44 19 | 90 N. 10 |
| 20 | η Tauri - - | 3 | 1 32 3 | 3 37 55·86 | N.23 36 18·5 | N.39 7 | 90 N. 5 |
| 20 | *f* Pleiadum | 5 | 2 13 8 | 3 39 36·38 | N.23 33 31·3 | N.48 22 | 90 N. 14 |
| 21 | β Tauri - - | 2 | 16 44 37 | 5 16 8·25 | 28 28 6·6 | S. 8 34 | 36 N. 26 |
| 22 | 136 Tauri - - | 4.5 | 3 25 31 | 5 43 13·87 | 27 34 13·3 | N.65 13 | 90 N. 49 |
| 22 | κ Aurigæ - | 4 | 12 6 13 | 6 5 8·60 | N.29 33 15·2 | S.52 32 | 11 S. 60 |

## ELEMENTS

for facilitating the Computation of Occultations of certain Stars by the Moon.

| Day of the Month. | Star's Name. | Magnitude. | Greenwich Mean Time of Apparent ☉ in R.A. of ☾ and ✱. | At Greenwich Mean Time of ☉: Apparent R. A. of ☾ and ✱. | Apparent Declination of ✱. | Diff. of Apparent Dec. of ☾ and ✱. | Limiting Parallels. |
|---|---|---|---|---|---|---|---|
| | | | h m s | h m s | ° ′ ″ | ☾ ′ ″ | Latitude. ° ° |
| Feb. 23 | 47 Geminor. | 6 | 10 48 51 | 7 1 25·10 | N.27 7 0·7 | N.36 8 | 90 N. 12 N. |
| 23 | ι Geminor. | 4 | 16 45 0 | 7 15 45·11 | 28 6 49·0 | S.52 25 | 10 S. 62 S. |
| 23 | υ Geminor. | 5 | 21 3 14 | 7 26 1·53 | 27 14 58·8 | 24 44 | 20 N. 47 S. |
| 24 | φ Geminor. | 5 | 4 33 15 | 7 43 40·21 | N.27 10 41·4 | S.68 54 | 37 S. 63 S. |
| 25 | γ Cancri - | 5 | 2 50 14 | 8 33 59·68 | N.22 2 35·8 | N.52 25 | 90 N. 19 N. |
| 28 | χ Leonis - | 4.5 | 3 0 52 | 10 56 44·49 | 8 12 10·3 | S.12 54 | 32 N. 56 S. |
| 28 | σ Leonis - | 4 | 11 57 49 | 11 12 52·03 | 6 54 30·2 | S.62 31 | 19 S. 83 S. |
| 28 | τ Leonis - | 4 | 15 47 3 | 11 19 41·42 | N. 3 44 23·1 | N.72 52 | 90 N. 36 N. |
| Mar. 1 | β Virginis - | 3.4 | 4 35 3 | 11 42 20·65 | N. 2 40 11·3 | S.47 15 | 1 S. 87 S. |
| 3 | α Virginis - | 1 | 10 14 28 | 13 16 44·76 | S.10 19 18·1 | S.22 36 | 21 N. 69 S. |
| 3 | 68 Virginis - | 5 | 11 4 51 | 13 18 15·05 | 11 52 13·2 | N.59 7 | 78 N. 16 N. |
| 4 | Virginis - | 6 | 13 26 24 | 14 6 33·56 | S.17 26 55·7 | N.59 18 | 73 N. 18 N. |
| 6 | 1 Scorpii - | 5 | 12 58 57 | 15 41 19·62 | S.25 15 27·2 | N.44 11 | 65 N. 1 N. |
| 6 | 2 Scorpii - | 5 | 14 13 49 | 15 43 58·70 | 24 50 31·8 | 9 21 | 37 N. 35 S. |
| 6 | π Scorpii - | 3.4 | 16 38 55 | 15 49 8·63 | 25 38 44·6 | N.38 49 | 64 N. 5 S. |
| 7 | σ Scorpii - | 4 | 2 54 25 | 16 11 25·83 | S.25 12 5·1 | S.60 1 | 36 S. 90 S. |
| 7 | α Scorpii - | 1 | 6 34 57 | 16 19 33·76 | S.26 4 14·2 | S.30 42 | 4 S. 83 S. |
| 7 | τ Scorpii - | 3.4 | 9 25 3 | 16 25 53·23 | 27 52 35·4 | N.61 12 | 62 N. 25 N. |
| 8 | 3 Sagittarii | 5 | 16 17 39 | 17 37 26·35 | 27 45 47·5 | S.53 42 | 36 S. 90 S. |
| 8 | γ¹ Sagittarii | 5 | 23 30 37 | 17 54 44·86 | S.29 34 50·9 | N.50 32 | 60 N. 9 N. |
| 9 | Sagittarii | 5 | 0 48 57 | 17 57 53·80 | S.28 28 4·8 | S.16 13 | 1 S. 63 S. |
| 10 | τ Sagittarii | 4 | 1 0 36 | 18 56 53·52 | 27 53 57·6 | N. 0 37 | 21 N. 44 S. |
| 12 | η Capricorni | 5 | 1 51 11 | 20 55 14·01 | 20 29 17·5 | S.46 59 | 8 S. 90 S. |
| 12 | γ Capricorni | 4 | 17 11 55 | 21 31 9·57 | S.17 23 12·4 | S.34 40 | 7 N. 82 S. |
| 12 | δ Capricorni | 3.4 | 20 13 6 | 21 38 8·51 | S.16 51 17·8 | S.24 2 | 17 N. 69 S. |
| 18 | ε Arietis - | 5 | 13 21 51 | 2 50 0·80 | N.20 41 38·7 | S. 1 20 | 43 N. 35 S. |
| 19 | g Pleiadum | 5.6 | 7 33 39 | 3 35 14·59 | 23 46 49·3 | N.21 10 | 66 N. 11 S. |
| 19 | b Pleiadum | 4.5 | 7 35 33 | 3 35 19·39 | N.23 36 15·7 | N.32 3 | 80 N. 2 S. |
| 19 | e Pleiadum | 5 | 7 42 59 | 3 35 38·11 | N.23 57 34·2 | N.11 58 | 56 N. 19 S. |
| 19 | c Pleiadum | 5 | 7 57 45 | 3 36 15·38 | 23 51 42·1 | 20 16 | 65 N. 12 S. |
| 19 | d Pleiadum | 5 | 8 10 11 | 3 36 46·77 | 23 26 38·4 | 47 23 | 90 N. 12 N. |
| 19 | η Tauri - - | 3 | 8 37 22 | 3 37 55·44 | N.23 36 17·1 | N.42 12 | 90 N. 8 N. |
| 19 | f Pleiadum | 5 | 9 17 8 | 3 39 35·95 | N.23 33 30·0 | N.51 26 | 90 N. 17 N. |
| 19 | h Pleiadum | 5.6 | 9 17 19 | 3 39 36·40 | 23 38 31·0 | N.46 26 | 90 N. 12 N. |
| 20 | β Tauri - - | 2 | 22 47 45 | 5 16 7·77 | 28 28 6·4 | S. 5 48 | 39 N. 23 S. |
| 21 | 136 Tauri - - | 4.5 | 9 17 2 | 5 43 13·39 | N.27 34 13·4 | N.67 52 | 90 N. 52 N. |

## ELEMENTS

for facilitating the Computation of Occultations of certain Stars by the Moo

| Day of the Month. | Star's Name. | Magnitude. | Greenwich *Mean Time* of *Apparent* ♂ in R. A. of ☾ and ✱. | At Greenwich Mean Time of ♂: *Apparent* R. A. of ☾ and ✱. | *Apparent* Declination of ✱. | Diff. of *Apparent* Dec. of ☾ and ✱. | Limi Para |
|---|---|---|---|---|---|---|---|
| | | | h m s | h m s | ° ′ ″ | ☾ ′ ″ | Lati ° |
| Mar. 21 | κ Aurigæ - | 4 | 17 50 9 | 6 5 8·13 | N. 29 33 15·6 | S. 50 1 | 7 S. |
| 22 | ι Geminor. | 4 | 22 15 39 | 7 15 44·71 | 28 6 50·2 | 50 17 | 7 S. |
| 23 | ν Geminor. | 5 | 2 33 22 | 7 26 1·15 | 27 15 0·1 | 22 41 | 22 N. |
| 23 | φ Geminor. | 5 | 10 3 17 | 7 43 39·86 | N. 27 10 42·9 | S. 66 57 | 33 S. |
| 24 | γ Cancri - | 5 | 8 25 19 | 8 33 59·43 | N. 22 2 37·2 | N. 54 2 | 90 N. |
| 27 | χ Leonis - | 4.5 | 9 15 50 | 10 56 44·57 | 8 12 10·1 | S. 12 11 | 33 N. |
| 27 | σ Leonis - | 4 | 18 17 3 | 11 12 52·14 | 6 54 29·8 | S. 61 52 | 18 S. |
| 27 | τ Leonis - | 4 | 22 7 56 | 11 19 41·55 | N. 3 44 22·2 | N. 73 30 | 90 N. |
| 28 | β Virginis - | 3.4 | 11 0 38 | 11 42 20·85 | N. 2 40 10·2 | S. 46 39 | 0 |
| 30 | α Virginis - | 1 | 16 45 49 | 13 16 45·21 | S. 10 19 21·1 | S. 21 51 | 21 N. |
| 30 | 68 Virginis - | 5 | 17 36 9 | 13 18 15·50 | 11 52 16·5 | N. 59 53 | 78 N. |
| Apr. 2 | 1 Scorpii - | 5 | 19 31 49 | 15 41 20·38 | S. 25 15 30·1 | N. 45 48 | 65 N. |
| 2 | 2 Scorpii - | 5 | 20 47 4 | 15 43 59·46 | S. 24 50 34·5 | N. 10 58 | 38 N. |
| 2 | π Scorpii - | 3.4 | 23 13 0 | 15 49 9·40 | 25 38 47·3 | N. 40 28 | 63 N. |
| 3 | σ Scorpii - | 4 | 9 32 58 | 16 11 26·66 | 25 12 7·5 | S. 58 14 | 34 S. |
| 3 | α Scorpii - | 1 | 13 15 30 | 16 19 34·61 | S. 26 4 16·4 | S. 28 51 | 3 S. |
| 3 | τ Scorpii - | 3.4 | 16 7 17 | 16 25 54·10 | S. 27 52 37·6 | N. 63 5 | 62 N. |
| 4 | 3 Sagittarii | 5 | 23 27 2 | 17 37 27·25 | 27 45 48·0 | S. 51 27 | 34 S. |
| 5 | $\gamma^1$ Sagittarii | 5 | 6 48 48 | 17 54 45·81 | 29 34 51·0 | N. 52 52 | 60 N. |
| 5 | Sagittarii | 5 | 8 8 49 | 17 57 54·74 | S. 28 28 4·9 | S. 13 52 | 1 N. |
| 6 | φ Sagittarii | 4.5 | 0 1 10 | 18 35 37·14 | S. 27 8 59·3 | S. 71 21 | 61 S. |
| 6 | τ Sagittarii | 4 | 8 56 34 | 18 56 54·44 | 27 53 56·2 | N. 3 11 | 23 N. |
| 6 | p Sagittarii | 6 | 16 18 40 | 19 14 28·60 | 28 10 16·4 | N. 53 28 | 62 N. |
| 8 | η Capricorni | 5 | 11 17 43 | 20 55 14·73 | S. 20 29 14·2 | S. 44 19 | 6 S. |
| 9 | γ Capricorni | 4 | 3 6 41 | 21 31 10·21 | S. 17 23 8·9 | S. 32 8 | 9 N. |
| 9 | δ Capricorni | 3.4 | 6 13 10 | 21 38 9·14 | 16 51 14·3 | 21 33 | 19 N. |
| 9 | ι Aquarii - | 4.5 | 14 59 40 | 21 57 44·44 | 14 38 52·7 | 28 10 | 15 N. |
| 10 | σ Aquarii - | 5 | 2 1 13 | 22 22 7·58 | S. 11 29 59·2 | S. 48 5 | 1 S. |
| 10 | λ Aquarii - | 4 | 12 4 54 | 22 44 12·81 | S. 8 26 6·2 | S. 68 34 | 21 S. |
| 10 | GEORGIAN | - | 21 12 54 | 23 4 10·95 | 6 47 0·4 | S. 13 1 | 32 N. |
| 10 | φ Aquarii - | 5 | 22 2 23 | 23 5 59·02 | S. 6 54 56·6 | N. 9 8 | 51 N. |
| 15 | *b* Pleiadum | 4.5 | 17 5 49 | 3 35 19·15 | N. 23 36 14·2 | N. 28 22 | 75 N. |
| 15 | *e* Pleiadum | 5 | 17 13 0 | 3 35 37·87 | N. 23 57 32·7 | N. 8 17 | 52 N. |
| 15 | *c* Pleiadum | 5 | 17 27 17 | 3 36 15·14 | 23 51 40·6 | 16 35 | 61 N. |
| 15 | *d* Pleiadum | 5 | 17 39 19 | 3 36 46·53 | 23 26 36·9 | 43 42 | 90 N. |
| 15 | η Tauri - - | 3 | 18 5 36 | 3 37 55·20 | N. 23 36 15·7 | N. 38 29 | 90 N. |

## ELEMENTS

for facilitating the Computation of Occultations of certain Stars by the Moon.

| Day of the Month. | Star's Name. | Magnitude. | Greenwich *Mean Time* of *Apparent* ♂ in R. A. of ☾ and ✱. | At Greenwich Mean Time of ♂ | | | Limiting Parallels. |
|---|---|---|---|---|---|---|---|
| | | | | *Apparent* R. A. of ☾ and ✱. | *Apparent* Declination of ✱. | Diff. of *Apparent* Dec. of ☾ and ✱. | |
| | | | h m s | h m s | ° ′ ″ | ′ ″ | Latitude. ° ° |
| pr. 15 | *f* Pleiadum | 5 | 18 44 4 | 3 39 35·71 | N. 23 33 28·5 | N. 47 42 | 90 N. 12 N. |
| 16 | χ Tauri - - | 6 | 7 18 49 | 4 12 47·43 | 25 14 46·0 | N. 57 18 | 90 N. 26 N. |
| 17 | β Tauri - - | 2 | 6 58 9 | 5 16 7·36 | 28 28 5·4 | S. 10 39 | 34 N. 27 S. |
| 17 | 136 Tauri - | 4.5 | 17 6 47 | 5 43 12·96 | N. 27 34 12·8 | N. 62 47 | 90 N. 44 N. |
| 18 | κ Aurigæ - | 4 | 1 23 49 | 6 5 7·67 | N. 29 33 15·2 | S. 55 16 | 13 S. 60 S. |
| 18 | *c* Aurigæ - | 6 | 9 2 5 | 6 25 4·53 | 28 8 35·5 | N. 18 47 | 65 N. 1 S. |
| 19 | ι Geminor. | 4 | 5 2 57 | 7 15 44·25 | 28 6 50·8 | S. 55 59 | 14 S. 62 S. |
| 19 | ν Geminor. | 5 | 9 14 48 | 7 26 0·69 | N. 27 15 0·8 | S. 28 25 | 17 N. 50 S. |
| 19 | φ Geminor. | 5 | 16 35 15 | 7 43 39·40 | N. 27 10 43·8 | S. 72 45 | 47 S. 63 S. |
| 20 | γ Cancri - | 5 | 14 35 16 | 8 33 59·03 | 22 2 38·5 | N. 48 9 | 90 N. 14 N. |
| 22 | 34 Leonis - | 6 | 10 4 35 | 10 2 59·84 | 14 8 49·4 | N. 19 45 | 65 N. 21 S. |
| 23 | MARS - - | - | 13 20 42 | 10 53 28·97 | N. 9 34 40·4 | S. 73 46 | 40 S. 80 S. |
| 23 | χ Leonis - | 4.5 | 15 9 26 | 10 56 44·42 | N. 8 12 11·1 | S. 16 31 | 29 N. 59 S. |
| 24 | σ Leonis - | 4 | 0 12 15 | 11 12 52·02 | 6 54 30·7 | S. 65 48 | 24 S. 83 S. |
| 24 | τ Leonis - | 4 | 4 3 55 | 11 19 41·45 | 3 44 22·7 | N. 69 45 | 90 N. 31 N. |
| 24 | β Virginis - | 3.4 | 16 59 25 | 11 42 20·80 | N. 2 40 10·6 | S. 49 45 | 4 S. 87 S. |
| 26 | 50 Virginis - | 6 | 14 13 46 | 13 1 22·23 | S. 9 28 30·6 | N. 43 39 | 68 N. 2 S. |
| 26 | α Virginis - | 1 | 22 51 41 | 13 16 45·39 | 10 19 22·4 | S. 21 32 | 21 N. 68 S. |
| 26 | 68 Virginis - | 5 | 23 42 0 | 13 18 15·69 | 11 52 18·0 | N. 60 16 | 78 N. 18 N. |
| 30 | 1 Scorpii - | 5 | 1 25 5 | 15 41 21·00 | S. 25 15 32·5 | N. 51 4 | 65 N. 10 N. |
| 30 | 2 Scorpii - | 5 | 2 40 4 | 15 44 0·08 | S. 24 50 36·8 | N. 16 19 | 43 N. 28 S. |
| 30 | π Scorpii - | 3.4 | 5 5 32 | 15 49 10·05 | 25 38 49·6 | N. 45 57 | 64 N. 4 N. |
| 30 | σ Scorpii - | 4 | 15 23 46 | 16 11 27·33 | 25 12 9·3 | S. 52 10 | 26 S. 90 S. |
| 30 | α Scorpii - | 1 | 19 5 51 | 16 19 35·30 | S. 26 4 18·1 | S. 22 35 | 3 N. 71 S. |
| 30 | τ Scorpii - | 3.4 | 21 57 21 | 16 25 54·82 | S. 27 52 39·5 | N. 69 31 | 62 N. 49 N. |
| May 2 | 3 Sagittarii | 5 | 5 19 50 | 17 37 28·13 | 27 45 48·5 | S. 43 28 | 25 S. 90 S. |
| 2 | $\gamma^1$ Sagittarii | 5 | 12 44 8 | 17 54 46·70 | 29 34 51·2 | N. 61 12 | 60 N. 27 N. |
| 2 | Sagittarii | 5 | 14 4 41 | 17 57 55·62 | S. 28 28 4·9 | S. 5 29 | 9 N. 50 S. |
| 3 | φ Sagittarii | 4.5 | 6 6 0 | 18 35 38·04 | S. 27 8 58·4 | S. 62 18 | 45 S. 90 S. |
| 3 | τ Sagittarii | 4 | 15 8 25 | 18 56 55·37 | 27 53 54·8 | N. 12 36 | 32 N. 32 S. |
| 5 | η Capricorni | 5 | 18 37 1 | 20 55 15·60 | 20 29 10·3 | S. 33 42 | 3 N. 84 S. |
| 6 | γ Capricorni | 4 | 10 55 22 | 21 31 11·03 | S. 17 23 4·6 | S. 21 32 | 18 N. 66 S. |
| 6 | δ Capricorni | 3.4 | 14 7 56 | 21 38 9·94 | S. 16 51 9·9 | S. 10 58 | 28 N. 55 S. |
| 6 | ι Aquarii - | 4.5 | 23 11 59 | 21 57 45·22 | 14 38 48·2 | 17 45 | 24 N. 62 S. |
| 7 | σ Aquarii - | 5 | 10 36 3 | 22 22 8·32 | 11 29 54·7 | 38 1 | 8 N. 87 S. |
| 7 | λ Aquarii - | 4 | 21 0 17 | 22 44 13·50 | S. 8 26 1·8 | S. 58 57 | 11 S. 90 S.* |

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|---|---|---|---|---|---|---|---|
| | | | | *Apparent* R. A. of ☾ and ✱. | *Apparent* Declination of ✱. | Diff. of *Apparent* Dec. of ☾ and ✱. | |
| | | | h m s | h m s | ° ′ ″ | ☾ ′ ″ | Latitude ° |
| May 8 | φ Aquarii - | 5 | 7 17 44 | 23 5 59·70 | S. 6 54 52·1 | N. 18 8 | 60 N. |
| 8 | GEORGIAN | - | 8 27 27 | 23 8 27·13 | S. 6 21 4·9 | N. 3 44 | 47 N. |
| 10 | δ Piscium - | 5 | 3 16 13 | 0 40 20·24 | N. 6 42 31·5 | S. 37 47 | 13 N. |
| 10 | ε Piscium - | 4 | 9 41 44 | 0 54 35·77 | N. 7 1 22·0 | N. 54 59 | 90 N. |
| 15 | 136 Tauri - | 4.5 | 2 52 22 | 5 43 12·76 | N. 27 34 11·7 | N. 54 20 | 90 N. |
| 15 | κ Aurigæ - | 4 | 10 56 0 | 6 5 7·44 | 29 33 14·0 | S. 64 21 | 25 S. |
| 16 | 47 Geminor. | 6 | 8 11 50 | 7 1 23·90 | 27 7 1·8 | N. 22 8 | 68 N. |
| 16 | ι Geminor. | 4 | 13 48 10 | 7 15 43·91 | N. 28 6 50·5 | S. 66 56 | 30 S. |
| 16 | υ Geminor. | 5 | 17 52 54 | 7 26 0·35 | N. 27 15 0·6 | S. 39 36 | 6 N. |
| 17 | γ Cancri - | 5 | 22 26 25 | 8 33 58·67 | 22 2 39·3 | N. 35 37 | 88 N. |
| 20 | χ Leonis - | 4.5 | 21 47 55 | 10 56 44·16 | 8 12 12·6 | S. 29 4 | 17 N. |
| 21 | MARS - - | - | 4 30 54 | 11 8 49·30 | N. 6 52 6·4 | S. 43 33 | 4 N. |
| 21 | σ Leonis - | 4 | 6 46 38 | 11 12 51·79 | N. 6 54 32·2 | S. 77 58 | 52 S. |
| 21 | τ Leonis - | 4 | 10 36 50 | 11 19 41·22 | 3 44 24·0 | N. 57 47 | 90 N. |
| 21 | β Virginis - | 3.4 | 23 28 29 | 11 42 20·61 | N. 2 40 11·8 | S. 60 57 | 17 S. |
| 24 | α Virginis - | 1 | 5 15 36 | 13 16 45·38 | S. 10 19 22·5 | S. 28 5 | 15 N. |
| 24 | 68 Virginis - | 5 | 6 5 53 | 13 18 15·69 | S. 11 52 18·3 | N. 53 48 | 78 N. |
| 25 | Virginis - | 6 | 8 20 56 | 14 6 34·55 | 17 27 2·4 | 58 56 | 73 N. |
| 27 | 1 Scorpii - | 5 | 7 34 43 | 15 41 21·38 | 25 15 34·2 | 52 48 | 65 N. |
| 27 | 2 Scorpii - | 5 | 8 49 14 | 15 44 0·47 | S. 24 50 38·4 | N. 18 11 | 45 N. |
| 27 | π Scorpii - | 3.4 | 11 13 45 | 15 49 10·44 | S. 25 38 51·3 | N. 48 5 | 64 N. |
| 27 | σ Scorpii - | 4 | 21 27 44 | 16 11 27·79 | 25 12 10·7 | S. 48 55 | 23 S. |
| 28 | α Scorpii - | 1 | 1 8 12 | 16 19 35·80 | 26 4 19·6 | 18 57 | 6 N. |
| 29 | 3 Sagittarii | 5 | 11 6 37 | 17 37 28·81 | S. 27 45 48·9 | S. 36 20 | 18 S. |
| 29 | γ¹ Sagittarii | 5 | 18 27 52 | 17 54 47·43 | S. 29 34 51·6 | N. 69 4 | 60 N. |
| 29 | Sagittarii | 5 | 19 47 54 | 17 57 56·36 | 28 28 5·1 | N. 2 30 | 17 N. |
| 30 | φ Sagittarii | 4.5 | 11 43 54 | 18 35 38·84 | 27 8 57·7 | S. 52 48 | 33 S. |
| 30 | τ Sagittarii | 4 | 20 44 19 | 18 56 56·21 | S. 27 53 53·8 | N. 22 55 | 43 N. |
| 31 | 52 Sagittarii | 4.5 | 9 31 33 | 19 26 57·21 | S. 25 13 55·5 | S. 72 14 | 59 S. |
| June 2 | η Capricorni | 5 | 0 23 13 | 20 55 16·54 | 20 29 6·3 | 19 20 | 16 N. |
| 2 | γ Capricorni | 4 | 16 54 35 | 21 31 11·93 | 17 23 0·0 | S. 6 18 | 31 N. |
| 2 | δ Capricorni | 3.4 | 20 10 18 | 21 38 10·84 | S. 16 51 5·3 | N. 4 24 | 41 N. |
| 3 | ι Aquarii - | 4.5 | 5 24 20 | 21 57 46·13 | S. 14 38 43·1 | S. 2 4 | 37 N. |
| 3 | σ Aquarii - | 5 | 17 3 3 | 22 22 9·18 | 11 29 49·5 | 22 7 | 22 N. |
| 4 | λ Aquarii - | 4 | 3 42 37 | 22 44 14·39 | 8 25 56·3 | S. 43 4 | 4 N. |
| 4 | φ Aquarii - | 5 | 14 16 45 | 23 6 0·53 | S. 6 54 46·7 | N. 33 51 | 77 N. |

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| Day of the Month. | Star's Name. | Magnitude. | Greenwich *Mean Time* of *Apparent* ♂ in R. A. of ☾ and ✱. | At Greenwich Mean Time of ♂ | | | Limiting Parallels. |
|---|---|---|---|---|---|---|---|
| | | | | *Apparent* R. A. of ☾ and ✱. | *Apparent* Declination of ✱. | Diff. of *Apparent* Dec. of ☾ and ✱. | |
| | | | h m s | h m s | ° ′ ″ | ☾ ′ ″ | Latitude. ° ° |
| June 4 | Georgian | - | 16 38 56 | 23 10 52·92 | S. 6 6 52·5 | N.24 22 | 67 N. 23 S. |
| 6 | δ Piscium | 5 | 11 36 45 | 0 40 20·97 | N. 6 42 35·9 | S.25 12 | 23 N. 67 S. |
| 6 | ε Piscium | 4 | 18 14 25 | 0 54 36·49 | 7 1 26·3 | N.66 50 | 90 N. 18 N. |
| 8 | ψ Arietis | 6 | 8 40 16 | 2 21 59·32 | N.16 59 29·2 | N.67 14 | 90 N. 26 N. |
| 8 | ε Arietis | 5 | 20 9 34 | 2 50 1·41 | N.20 41 38·6 | S. 1 26 | 43 N. 34 S. |
| 13 | υ Geminor. | 5 | 3 43 8 | 7 26 0·26 | 27 14 59·8 | S.49 43 | 5 S. 63 S. |
| 13 | κ Geminor. | 4 | 7 9 59 | 7 34 43·80 | 24 46 49·7 | N.74 54 | 90 N. 57 N. |
| 14 | γ Cancri | 5 | 7 44 7 | 8 33 58·47 | N.22 2 39·4 | N.22 28 | 68 N. 11 S. |
| 17 | χ Leonis | 4.5 | 5 41 54 | 10 56 43·90 | N. 8 12 14·1 | S.46 9 | 1 N. 82 S. |
| 17 | τ Leonis | 4 | 18 19 39 | 11 19 40·97 | 3 44 25·5 | N.40 42 | 90 N. 6 S. |
| 18 | β Virginis | 3.4 | 7 1 51 | 11 42 20·36 | 2 40 13·4 | S.77 49 | 49 S. 87 S. |
| 18 | Mars | - | 9 40 58 | 11 47 1·85 | N. 1 56 41·2 | S.72 22 | 33 S. 88 S. |
| 20 | α Virginis | 1 | 12 27 28 | 13 16 45·24 | S.10 19 21·8 | S.41 45 | 2 N. 90 S. |
| 20 | 68 Virginis | 5 | 13 17 36 | 13 18 15·54 | 11 52 17·7 | N.40 13 | 77 N. 6 S. |
| 23 | 1 Scorpii | 5 | 14 37 24 | 15 41 21·51 | 25 15 35·2 | 47 23 | 65 N. 5 N. |
| 23 | 2 Scorpii | 5 | 15 51 39 | 15 44 0·61 | S.24 50 39·4 | N.12 55 | 40 N. 31 S. |
| 23 | π Scorpii | 3.4 | 18 15 37 | 15 49 10·60 | S.25 38 52·4 | N.43 7 | 64 N. 0 |
| 24 | σ Scorpii | 4 | 4 26 52 | 16 11 28·01 | 25 12 11·7 | S.52 37 | 27 S. 90 S. |
| 24 | α Scorpii | 1 | 8 6 10 | 16 19 36·02 | 26 4 20·7 | S.22 10 | 3 N. 70 S. |
| 24 | τ Scorpii | 3.4 | 10 55 28 | 16 25 55·59 | S.27 52 42·5 | N.70 35 | 62 N. 54 N. |
| 25 | 3 Sagittarii | 5 | 17 49 24 | 17 37 29·24 | S.27 45 49·7 | S.35 19 | 17 S. 90 S. |
| 26 | Sagittarii | 5 | 2 25 32 | 17 57 56·86 | 28 28 5·8 | N. 4 36 | 19 N. 39 S. |
| 26 | φ Sagittarii | 4.5 | 18 11 1 | 18 35 39·42 | 27 8 57·7 | S.48 43 | 28 S. 90 S. |
| 27 | τ Sagittarii | 4 | 3 5 6 | 18 56 56·86 | S.27 53 53·6 | N.28 7 | 48 N. 16 S. |
| 27 | 52 Sagittarii | 4.5 | 15 43 1 | 19 26 57·89 | S.25 13 54·4 | S.65 28 | 43 S. 90 S. |
| 29 | η Capricorni | 5 | 6 8 47 | 20 55 17·34 | 20 29 3·3 | S. 7 57 | 26 N. 52 S. |
| 29 | γ Capricorni | 4 | 22 32 33 | 21 31 12·77 | 17 22 56·2 | N. 6 49 | 43 N. 38 S. |
| 30 | δ Capricorni | 3.4 | 1 47 9 | 21 38 11·71 | S.16 51 1·1 | N.17 50 | 54 N. 28 S. |
| 30 | ι Aquarii | 4.5 | 10 58 49 | 21 57 46·99 | S.14 38 38·6 | N.12 13 | 50 N. 33 S. |
| 30 | 42 Aquarii | 6 | 15 55 35 | 22 8 12·30 | 13 37 38·1 | N.22 14 | 61 N. 24 S. |
| 30 | σ Aquarii | 5 | 22 36 25 | 22 22 10·05 | 11 29 44·6 | S. 6 56 | 35 N. 51 S. |
| July 1 | λ Aquarii | 4 | 9 16 58 | 22 44 15·25 | S. 8 25 51·1 | S.27 11 | 19 N. 72 S. |
| 1 | 81 Aquarii | 6 | 13 34 10 | 22 53 3·64 | S. 7 55 5·2 | N. 9 30 | 51 N. 36 S. |
| 1 | 83 Aquarii | 6 | 15 23 52 | 22 56 48·48 | 8 33 27·5 | 76 53 | 81 N. 35 N. |
| 1 | φ Aquarii | 5 | 19 54 8 | 23 6 1·41 | 6 54 41·3 | 50 14 | 83 N. 1 N. |
| 1 | Georgian | - | 22 24 37 | 23 11 8·78 | S. 6 6 20·8 | N.42 22 | 83 N. 7 S |

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| Day of the Month. | Star's Name. | Magnitude. | Greenwich *Mean Time* of *Apparent* ♂ in R. A. of ☾ and ✱. | At Greenwich Mean Time of ♂ | | | Limiting Parallel |
|---|---|---|---|---|---|---|---|
| | | | | *Apparent* R. A. of ☾ and ✱. | *Apparent* Declination of ✱. | Diff. of *Apparent* Dec. of ☾ and ✱. | |
| | | | h m s | h m s | ° ′ ″ | ☾ ′ ″ | Latitude ° |
| July 3 | δ Piscium - | 5 | 17 51 3 | 0 40 21·84 | N. 6 42 41·3 | S. 9 1 | 36 N. 5 |
| 4 | ε Piscium - | 4 | 0 37 7 | 0 54 37·39 | 7 1 31·8 | N. 82 38 | 90 N. 4 |
| 6 | ε Arietis - | 5 | 3 50 13 | 2 50 2·24 | 20 41 41·6 | 9 22 | 53 N. 2 |
| 6 | *b* Pleiadum | 4.5 | 22 7 20 | 3 35 20·44 | N. 23 36 15·8 | N. 34 45 | 84 N. |
| 6 | *e* Pleiadum | 5 | 22 14 42 | 3 35 39·16 | N. 23 57 34·1 | N. 14 37 | 59 N. |
| 6 | *c* Pleiadum | 5 | 22 29 22 | 3 36 16·42 | 23 51 42·0 | 22 49 | 68 N. |
| 6 | *d* Pleiadum | 5 | 22 41 43 | 3 36 47·80 | 23 26 38·5 | 49 50 | 90 N. |
| 6 | η Tauri - - | 3 | 23 8 42 | 3 37 56·46 | N. 23 36 17·1 | N. 44 27 | 90 N. |
| 6 | *f* Pleiadum | 5 | 23 48 10 | 3 39 36·99 | N. 23 33 30·1 | N. 53 24 | 90 N. |
| 13 | ρ Leonis - | 4 | 21 26 1 | 10 24 20·87 | 10 7 57·7 | 67 58 | 90 N. |
| 14 | Venus - | - | 2 33 20 | 10 34 14·04 | 9 53 36·3 | N. 9 30 | 55 N. |
| 14 | χ Leonis - | 4.5 | 14 27 29 | 10 56 43·71 | N. 8 12 15·2 | S. 60 44 | 15 S. |
| 15 | τ Leonis - | 4 | 2 54 53 | 11 19 40·76 | N. 3 44 26·9 | N. 25 27 | 71 N. |
| 17 | α Virginis - | 1 | 20 24 38 | 13 16 44·99 | S. 10 19 20·4 | S. 57 10 | 16 S. |
| 17 | 68 Virginis - | 5 | 21 14 32 | 13 18 15·30 | 11 52 16·4 | N. 24 49 | 66 N. |
| 20 | 1 Scorpii - | 5 | 22 33 35 | 15 41 21·39 | S. 25 15 35·6 | N. 37 4 | 64 N. |
| 20 | 2 Scorpii - | 5 | 23 48 0 | 15 44 0·49 | S. 24 50 39·8 | N. 2 43 | 30 N. |
| 21 | π Scorpii - | 3.4 | 2 12 17 | 15 49 10·49 | 25 38 52·9 | N. 33 9 | 60 N. |
| 21 | σ Scorpii - | 4 | 12 24 44 | 16 11 27·94 | 25 12 12·2 | S. 61 38 | 39 S. |
| 21 | α Scorpii - | 1 | 16 4 24 | 16 19 35·97 | S. 26 4 21·3 | S. 30 51 | 5 S. |
| 21 | τ Scorpii - | 3.4 | 18 53 56 | 16 25 55·55 | S. 27 52 43·4 | N. 62 12 | 62 N. |
| 23 | 3 Sagittarii | 5 | 1 47 21 | 17 37 29·37 | 27 45 50·6 | S. 40 34 | 23 S. |
| 23 | $\gamma^1$ Sagittarii | 5 | 9 3 0 | 17 54 48·09 | 29 34 53·7 | N. 66 31 | 60 N. |
| 23 | Sagittarii | 5 | 10 21 56 | 17 57 57·03 | S. 28 28 6·8 | N. 0 16 | 15 N. |
| 24 | φ Sagittarii | 4.5 | 2 2 31 | 18 35 39·68 | S. 27 8 58·4 | S. 51 21 | 30 S. |
| 24 | τ Sagittarii | 4 | 10 52 36 | 18 56 57·17 | 27 53 54·2 | N. 26 28 | 47 N. |
| 24 | 52 Sagittarii | 4.5 | 23 23 19 | 19 26 58·28 | 25 13 54·4 | S. 65 40 | 37 S. |
| 26 | η Capricorni | 5 | 13 16 51 | 20 55 17·91 | S. 20 29 1·7 | S. 3 38 | 30 N. |
| 27 | γ Capricorni | 4 | 5 23 28 | 21 31 13·42 | S. 17 22 53·6 | N. 13 4 | 49 N. |
| 27 | δ Capricorni | 3.4 | 8 34 32 | 21 38 12·35 | 16 50 58·6 | 24 27 | 60 N. |
| 27 | ι Aquarii - | 4.5 | 17 36 7 | 21 57 47·65 | 14 38 35·6 | 19 50 | 57 N. |
| 28 | σ Aquarii - | 5 | 5 1 2 | 22 22 10·77 | S. 11 29 40·7 | N. 1 56 | 43 N. |
| 28 | λ Aquarii - | 4 | 15 30 17 | 22 44 15·98 | S. 8 25 46·9 | S. 17 17 | 28 N. |
| 29 | φ Aquarii - | 5 | 1 56 56 | 23 6 2·18 | 6 54 36·6 | N. 61 2 | 83 N. |
| 29 | Georgian | - | 3 31 29 | 23 9 18·40 | S. 6 18 53·3 | 51 16 | 84 N. |
| 30 | δ Piscium - | 5 | 23 23 44 | 0 40 22·69 | N. 6 42 46·9 | N. 4 6 | 48 N. |

## ELEMENTS

for facilitating the Computation of Occultations of certain Stars by the Moon.

| Day of the Month. | Star's Name. | Magnitude. | Greenwich *Mean Time* of *Apparent* ☉ in R. A. of ☾ and ✱. | At Greenwich Mean Time of ☉: *Apparent* R. A. of ☾ and ✱. | *Apparent* Declination of ✱. | Diff. of *Apparent* Dec. of ☾ and ✱. | Limiting Parallels. |
|---|---|---|---|---|---|---|---|
| | | | h m s | h m s | ° ′ ″ | ☾ ′ ″ | Latitude. ° ° |
| Aug. 2 | ε Arietis - | 5 | 9 39 56 | 2 50 3·15 | N.20 41 45·6 | N.21 2 | 66 N. 15 S. |
| 3 | *b* Pleiadum | 4.5 | 4 15 28 | 3 35 21·36 | 23 36 18·9 | 45 9 | 90 N. 11 N. |
| 3 | *e* Pleiadum | 5 | 4 22 59 | 3 35 40·08 | 23 57 37·1 | 25 1 | 71 N. 7 S. |
| 3 | *c* Pleiadum | 5 | 4 37 56 | 3 36 17·35 | N.23 51 45·0 | N.33 12 | 83 N. 0 |
| 3 | *d* Pleiadum | 5 | 4 50 31 | 3 36 48·72 | N.23 26 41·6 | N.60 12 | 90 N. 27 N. |
| 3 | η Tauri - - | 3 | 5 18 1 | 3 37 57·38 | 23 36 20·2 | 54 47 | 90 N. 21 N. |
| 3 | *f* Pleiadum | 5 | 5 58 14 | 3 39 37·88 | 23 33 33·0 | N.63 41 | 90 N. 32 N. |
| 4 | β Tauri - - | 2 | 19 19 30 | 5 16 8·76 | N.28 28 3·3 | S.11 51 | 33 N. 28 S. |
| 5 | 136 Tauri - | 4.5 | 5 34 55 | 5 43 14·14 | N.27 34 10·5 | N.56 58 | 90 N. 38 N. |
| 5 | κ Aurigæ - | 4 | 13 53 35 | 6 5 8·66 | 29 33 11·2 | S.64 43 | 27 S. 60 S. |
| 6 | *v* Geminor. | 5 | 21 20 44 | 7 26 0·95 | 27 14 57·2 | 51 16 | 7 S. 63 S. |
| 10 | χ Leonis - | 4.5 | 23 7 26 | 10 56 43·65 | N. 8 12 15·6 | S.67 52 | 25 S. 82 S. |
| 11 | τ Leonis - | 4 | 11 30 44 | 11 19 40·66 | N. 3 44 27·7 | N.17 25 | 62 N. 28 S. |
| 12 | Venus - | - | 16 27 22 | 12 11 55·94 | S. 3 46 53·4 | N.43 33 | 75 N. 6 S. |
| 14 | α Virginis - | 1 | 4 34 15 | 13 16 44·71 | 10 19 18·8 | S.67 36 | 30 S. 90 S. |
| 14 | 68 Virginis - | 5 | 5 23 55 | 13 18 15·01 | S.11 52 14·7 | N.14 23 | 55 N. 31 S. |
| 17 | 1 Scorpii - | 5 | 6 49 5 | 15 41 21·05 | S.25 15 35·2 | N.28 0 | 55 N. 16 S. |
| 17 | 2 Scorpii - | 5 | 8 4 2 | 15 44 0·16 | 24 50 39·4 | S. 6 18 | 21 N. 51 S. |
| 17 | π Scorpii - | 3.4 | 10 29 23 | 15 49 10·16 | 25 38 52·6 | N.24 14 | 50 N. 20 S. |
| 17 | σ Scorpii - | 4 | 20 46 52 | 16 11 27·64 | S.25 12 12·1 | S.70 7 | 57 S. 90 S. |
| 18 | α Scorpii - | 1 | 0 28 28 | 16 19 35·66 | S.26 4 21·3 | S.39 10 | 13 S. 90 S. |
| 18 | τ Scorpii - | 3.4 | 3 19 33 | 16 25 55·24 | 27 52 43·6 | N.54 1 | 62 N. 15 N. |
| 19 | 3 Sagittarii | 5 | 10 30 45 | 17 37 29·16 | 27 45 51·4 | S.57 13 | 41 S. 90 S. |
| 19 | $\gamma^1$ Sagittarii | 5 | 17 50 22 | 17 54 47·92 | S.29 34 54·7 | N.60 16 | 60 N. 25 N. |
| 19 | Sagittarii | 5 | 19 9 59 | 17 57 56·86 | S.28 28 7·7 | S. 5 55 | 9 N. 51 S. |
| 20 | φ Sagittarii | 4.5 | 10 57 51 | 18 35 39·59 | 27 8 59·4 | S.56 37 | 36 S. 90 S. |
| 20 | τ Sagittarii | 4 | 19 51 2 | 18 56 57·13 | 27 53 55·3 | N.21 45 | 42 N. 23 S. |
| 21 | 52 Sagittarii | 4.5 | 8 24 32 | 19 26 58·30 | S.25 13 55·3 | S.69 36 | 49 S. 90 S. |
| 22 | η Capricorni | 5 | 22 11 47 | 20 55 18·14 | S.20 29 1·6 | S. 4 54 | 29 N. 49 S. |
| 23 | γ Capricorni | 4 | 14 8 8 | 21 31 13·73 | 17 22 52·9 | N.13 1 | 49 N. 33 S. |
| 23 | δ Capricorni | 3.4 | 17 16 39 | 21 38 12·67 | 16 50 57·7 | 24 39 | 60 N. 22 S. |
| 24 | ι Aquarii - | 4.5 | 2 10 1 | 21 57 48·03 | S.14 38 34·2 | N.20 45 | 58 N. 26 S. |
| 24 | σ Aquarii - | 5 | 13 22 39 | 22 22 11·18 | S.11 29 38·8 | N. 3 42 | 44 N. 41 [illegible] |
| 24 | 58 Aquarii - | 6 | 13 51 4 | 22 23 12·55 | 11 43 17·0 | N.24 49 | 64 N. 23 [illegible] |
| 24 | λ Aquarii - | 4 | 23 39 1 | 22 44 16·44 | 8 25 44·3 | S.14 44 | 30 N. 58 [illegible] |
| 25 | Georgian | - | 9 47 9 | 23 5 53·41 | S. 6 40 51·5 | N.49 23 | 83 N. [illegible] |

## ELEMENTS

For facilitating the Computation of Occultations of certain Stars by the Moon.

| Day of the Month. | Star's Name. | Magnitude. | Greenwich *Mean Time* of *Apparent* ♂ in R. A. of ☾ and ✱. | At Greenwich Mean Time of ♂ *Apparent* R. A. of ☾ and ✱. | *Apparent* Declination of ✱. | Diff. of *Apparent* Dec. of ☾ and ✱. | Limiting Parallels. |
|---|---|---|---|---|---|---|---|
| | | | h m s | h m s | ° ′ ″ | ′ ″ | Latitude. ° ° |
| Aug. 25 | φ Aquarii - | 5 | 9 51 31 | 23 6 2·68 | S. 6 54 33·8 | N.64 20 | 83 N. 14 N. |
| 25 | 96 Aquarii - | 6 | 12 14 33 | 23 11 6·66 | S. 5 59 49·9 | 50 0 | 84 N. 18 |
| 27 | δ Piscium - | 5 | 6 9 21 | 0 40 23·38 | N. 6 42 51·6 | 9 51 | 53 N. 35 S. |
| 29 | 47 Arietis - | 6 | 14 47 27 | 2 48 54·53 | N.20 1 31·8 | N.62 4 | 90 N. 24 N. |
| 29 | ε Arietis - | 5 | 15 16 19 | 2 50 4·02 | N.20 41 49·8 | N.27 35 | 73 N. 10 S. |
| 30 | g Pleiadum | 5.6 | 9 40 25 | 3 35 17·48 | 23 46 55·7 | 40 37 | 90 N. 7 N. |
| 30 | b Pleiadum | 4.5 | 9 42 20 | 3 35 22·27 | 23 36 22·2 | 51 28 | 90 N. 17 N. |
| 30 | e Pleiadum | 5 | 9 49 49 | 3 35 40·99 | N.23 57 40·5 | N.31 20 | 80 N. 1 S. |
| 30 | c Pleiadum | 5 | 10 4 41 | 3 36 18·26 | N.23 51 48·4 | N.39 30 | 90 N. 6 N. |
| 30 | d Pleiadum | 5 | 10 17 12 | 3 36 49·63 | 23 26 44·9 | 66 30 | 90 N. 35 N. |
| 30 | η Tauri - - | 3 | 10 44 34 | 3 37 58·28 | 23 36 23·4 | 61 4 | 90 N. 28 N. |
| 30 | f Pleiadum | 5 | 11 24 36 | 3 39 38·79 | N.23 33 36·3 | N.69 58 | 90 N. 41 N. |
| 30 | h Pleiadum | 5.6 | 11 24 47 | 3 39 39·24 | N.23 38 37·2 | N.64 58 | 90 N. 33 N. |
| Sept. 1 | β Tauri - - | 2 | 0 50 47 | 5 16 9·71 | 28 28 4·2 | S. 6 31 | 38 N. 23 S. |
| 1 | 136 Tauri - | 4.5 | 11 12 23 | 5 43 15·01 | 27 34 10·9 | N.61 58 | 90 N. 44 N. |
| 1 | κ Aurigæ - | 4 | 19 37 20 | 6 5 9·52 | N.29 33 11·0 | S.60 0 | 20 S. 60 S. |
| 2 | ι Geminor. | 4 | 23 24 50 | 7 15 45·32 | N.28 6 45·2 | S.73 24 | 49 S. 62 S. |
| 3 | ν Geminor. | 5 | 3 35 33 | 7 26 1·67 | 27 14 55·5 | S.47 42 | 3 S. 63 S. |
| 4 | γ Cancri - | 5 | 8 31 52 | 8 33 59·32 | N.22 2 35·6 | N.16 37 | 62 N. 17 S. |
| 10 | α Virginis - | 1 | 12 15 12 | 13 16 44·50 | S.10 19 17·4 | S.69 59 | 35 S. 90 S. |
| 10 | 68 Virginis - | 5 | 13 4 44 | 13 18 14·80 | S.11 52 13·2 | N.12 0 | 53 N. 33 S. |
| 13 | 1 Scorpii - | 5 | 14 35 56 | 15 41 20·63 | 25 15 34·0 | N.25 42 | 53 N. 18 S. |
| 13 | 2 Scorpii - | 5 | 15 51 29 | 15 43 59·74 | 24 50 38·2 | S. 8 36 | 19 N. 54 S. |
| 13 | π Scorpii - | 3.4 | 18 18 3 | 15 49 9·73 | S.25 38 51·5 | N.21 57 | 48 N. 22 S. |
| 14 | α Scorpii - | 1 | 8 25 38 | 16 19 35·23 | S.26 4 20·6 | S.41 17 | 16 S. 90 S. |
| 14 | τ Scorpii - | 3.4 | 11 18 45 | 16 25 54·80 | 27 52 42·9 | N.51 55 | 62 N. 12 N. |
| 15 | 3 Sagittarii | 5 | 18 58 19 | 17 37 28·74 | 27 45 51·7 | S.48 56 | 32 S. 90 S. |
| 16 | $\gamma^1$ Sagittarii | 5 | 2 25 53 | 17 54 47·48 | S.29 34 55·3 | N.58 39 | 60 N. 23 N. |
| 16 | Sagittarii | 5 | 3 46 59 | 17 57 56·44 | S.28 28 8·3 | S. 7 31 | 8 N. 53 S. |
| 16 | φ Sagittarii | 4.5 | 19 53 5 | 18 35 39·23 | 27 9 0·2 | S.58 1 | 38 S. 90 S. |
| 17 | τ Sagittarii | 4 | 4 56 44 | 18 56 56·78 | 27 53 56·5 | N.20 29 | 41 N. 24 S. |
| 17 | 52 Sagittarii | 4.5 | 17 44 46 | 19 26 58·02 | S.25 13 56·4 | S.70 42 | 53 S. 90 S. |
| 19 | η Capricorni | 5 | 8 7 36 | 20 55 18·03 | S.20 29 2·7 | S. 5 31 | 29 N. 50 S. |
| 19 | $\chi^3$ Capricorni | 6 | 10 23 28 | 21 0 24·06 | 21 11 39·2 | N.63 59 | 69 N. 20 N. |
| 20 | γ Capricorni | 4 | 0 12 19 | 21 31 13·70 | 17 22 53·6 | 12 34 | 48 N. 33 S. |
| 20 | δ Capricorni | 3.4 | 3 21 51 | 21 38 12·66 | S.16 50 58·3 | N.24 14 | 60 N. 23 S. |

## ELEMENTS

for facilitating the Computation of Occultations of certain Stars by the Moon.

| Day of the Month. | Star's Name. | Magnitude. | Greenwich *Mean Time* of *Apparent* ♂ in R. A. of ☾ and ✱. | At Greenwich Mean Time of ♂ | | | Limiting Parallels. |
|---|---|---|---|---|---|---|---|
| | | | | *Apparent* R. A. of ☾ and ✱. | *Apparent* Declination of ✱. | Diff. of *Apparent* Dec. of ☾ and ✱. | |
| | | | h m s | h m s | ° ′ ″ | ☾ ′ ″ | Latitude. ° ° |
| Sept. 20 | ι Aquarii - | 4.5 | 12 16 55 | 21 57 48·06 | S. 14 38 34·4 | N. 20 23 | 58 N. 26 S. |
| 20 | σ Aquarii - | 5 | 23 29 4 | 22 22 11·28 | 11 29 38·5 | N. 3 25 | 44 N. 41 S. |
| 21 | λ Aquarii - | 4 | 9 42 16 | 22 44 16·59 | 8 25 43·5 | S. 14 59 | 30 N. 58 S. |
| 21 | 81 Aquarii - | 6 | 13 47 33 | 22 53 5·04 | S. 7 54 57·3 | N. 22 24 | 64 N. 25 S. |
| 21 | GEORGIAN - | | 17 52 41 | 23 1 52·64 | S. 7 5 50·7 | N. 42 21 | 82 N. 8 S. |
| 21 | φ Aquarii - | 5 | 19 49 0 | 23 6 2·88 | S. 6 54 32·8 | 64 7 | 83 N. 13 N. |
| 23 | 60 Piscium - | 6 | 14 39 56 | 0 39 7·20 | N. 5 52 10·0 | 50 12 | 90 N. 1 S. |
| 23 | 62 Piscium - | 6 | 15 3 37 | 0 39 59·71 | N. 6 25 36·1 | N. 23 40 | 67 N. 24 S. |
| 23 | δ Piscium - | 5 | 15 14 28 | 0 40 23·80 | N. 6 42 54·7 | N. 9 30 | 53 N. 35 S. |
| 25 | μ Arietis - | 6 | 15 48 58 | 2 33 20·76 | 19 19 44·0 | 21 9 | 65 N. 17 S. |
| 25 | ε Arietis - | 5 | 22 35 36 | 2 50 4·75 | 20 41 53·4 | 26 41 | 72 N. 11 S. |
| 26 | g Pleiadum | 5.6 | 16 26 19 | 3 35 18·29 | N. 23 46 58·8 | N. 39 30 | 90 N. 5 N. |
| 26 | b Pleiadum | 4.5 | 16 28 11 | 3 35 23·08 | N. 23 36 25·3 | N. 50 21 | 90 N. 16 N. |
| 26 | e Pleiadum | 5 | 16 35 26 | 3 35 41·81 | 23 57 43·6 | 30 13 | 77 N. 3 S. |
| 26 | c Pleiadum | 5 | 16 49 53 | 3 36 19·07 | 23 51 51·5 | 38 23 | 90 N. 4 N. |
| 26 | d Pleiadum | 5 | 17 2 3 | 3 36 50·45 | N. 23 26 47·9 | N. 65 23 | 90 N. 32 N. |
| 26 | η Tauri - - | 3 | 17 28 38 | 3 37 59·09 | N. 23 36 26·5 | N. 59 57 | 90 N. 26 N. |
| 26 | f Pleiadum | 5 | 18 7 32 | 3 39 39·61 | 23 33 39·3 | N. 68 50 | 90 N. 38 N. |
| 28 | β Tauri - - | 2 | 6 41 36 | 5 16 10·63 | 28 28 5·3 | S. 7 58 | 37 N. 24 S. |
| 28 | 136 Tauri - | 4.5 | 16 53 37 | 5 43 15·93 | N. 27 34 11·3 | N. 60 27 | 90 N. 41 N. |
| 29 | κ Aurigæ - | 4 | 1 12 33 | 6 5 10·49 | N. 29 33 10·8 | S. 61 34 | 21 S. 60 S. |
| 30 | υ Geminor. | 5 | 9 1 48 | 7 26 2·51 | 27 14 53·5 | S. 49 23 | 5 S. 63 S. |
| 30 | κ Geminor. | 4 | 12 37 8 | 7 34 45·93 | 24 46 44·2 | N. 74 16 | 90 N. 58 N. |
| Oct. 1 | γ Cancri - | 5 | 14 6 41 | 8 34 0·05 | N. 22 2 32·7 | N. 15 1 | 60 N. 18 S. |
| 3 | α Leonis - | 1 | 7 12 0 | 9 59 49·57 | N. 12 45 2·2 | N. 78 13 | 90 N. 58 N. |
| 3 | ρ Leonis - | 4 | 19 53 22 | 10 24 21·50 | 10 7 54·3 | N. 61 30 | 90 N. 19 N. |
| 4 | χ Leonis - | 4.5 | 13 11 35 | 10 56 44·12 | 8 12 12·3 | S. 68 49 | 27 S. 82 S. |
| 5 | τ Leonis - | 4 | 1 46 4 | 11 19 40·99 | N. 3 44 25·8 | N. 16 23 | 61 N. 29 S. |
| 10 | 1 Scorpii - | 5 | 21 25 35 | 15 41 20·30 | S. 25 15 32·3 | N. 30 30 | 58 N. 13 S. |
| 10 | 2 Scorpii - | 5 | 22 41 23 | 15 43 59·41 | 24 50 36·6 | S. 3 46 | 24 N. 48 S. |
| 11 | π Scorpii - | 3.4 | 1 8 30 | 15 49 9·39 | 25 38 49·8 | N. 26 51 | 53 N. 17 S. |
| 11 | σ Scorpii - | 4 | 11 35 5 | 16 11 26·82 | S. 25 12 9·8 | S. 67 7 | 51 S. 90 S. |
| 11 | α Scorpii - | 1 | 15 20 37 | 16 19 34·84 | S. 26 4 19·2 | S. 36 1 | 11 S. 90 [illegible] |
| 11 | τ Scorpii - | 3.4 | 18 14 59 | 16 25 54·39 | 27 52 41·4 | N. 57 15 | 62 N. 2[illegible] |
| 13 | 3 Sagittarii | 5 | 2 16 33 | 17 37 28·26 | 27 45 51·1 | S. 42 55 | 26 S. [illegible] |
| 13 | $\gamma^1$ Sagittarii | 5 | 9 51 40 | 17 54 47·00 | S. 29 34 54·9 | N. 64 48 | 60 N. |

## ELEMENTS

for facilitating the Computation of Occultations of certain Stars by the Moo

| Day of the Month. | Star's Name. | Magnitude. | Greenwich *Mean Time* of *Apparent* ☉ in R. A. of ☾ and ✱. | At Greenwich Mean Time of ☉ | | | Limi Para |
|---|---|---|---|---|---|---|---|
| | | | | *Apparent* R. A. of ☾ and ✱. | *Apparent* Declination of ✱. | Diff. of *Apparent* Dec. of ☾ and ✱. | |
| | | | h m s | h m s | ° ′ ″ | ☾ ′ ″ | Lati ° |
| Oct. 13 | Sagittarii | 5 | 11 14 14 | 17 57 55·96 | S. 28 28 8·0 | S. 1 21 | 14 N. |
| 14 | φ Sagittarii | 4.5 | 3 39 56 | 18 35 38·74 | 27 9 0·4 | S. 51 37 | 31 S. |
| 14 | τ Sagittarii | 4 | 12 56 16 | 18 56 56·28 | 27 53 57·0 | N. 26 58 | 48 N. |
| 15 | 52 Sagittarii | 4.5 | 2 3 57 | 19 26 57·55 | S. 25 13 57·2 | S. 64 7 | 42 S. |
| 16 | η Capricorni | 5 | 17 32 28 | 20 55 17·67 | S. 20 29 4·2 | N. 0 53 | 34 N. |
| 17 | γ Capricorni | 4 | 10 4 15 | 21 31 13·42 | 17 22 55·0 | 18 35 | 54 N. |
| 17 | δ Capricorni | 3.4 | 13 18 50 | 21 38 12·38 | 16 50 59·8 | 30 9 | 66 N. |
| 17 | ι Aquarii - | 4.5 | 22 27 32 | 21 57 47·83 | S. 14 38 35·8 | N. 26 0 | 63 N. |
| 18 | σ Aquarii - | 5 | 9 55 3 | 22 22 11·10 | S. 11 29 39·6 | N. 8 31 | 49 N. |
| 18 | 58 Aquarii - | 6 | 10 23 57 | 22 23 12·47 | 11 43 17·9 | N. 29 36 | 69 N. |
| 18 | λ Aquarii - | 4 | 20 20 9 | 22 44 16·46 | 8 25 44·3 | S. 10 27 | 33 N. |
| 19 | GEORGIAN | - | 3 2 39 | 22 58 29·50 | S. 7 26 12·8 | N. 40 8 | 82 N. |
| 19 | φ Aquarii - | 5 | 6 36 21 | 23 6 2·80 | S. 6 54 33·3 | N. 67 59 | 83 N. |
| 19 | 96 Aquarii - | 6 | 8 55 59 | 23 10 59·32 | S. 5 59 49·2 | 52 31 | 84 N. |
| 21 | δ Piscium - | 5 | 2 10 38 | 0 40 23·97 | N. 6 42 56·1 | 9 46 | 53 N. |
| 23 | 47 Arietis - | 6 | 8 0 14 | 2 48 55·80 | N. 20 1 38·1 | N. 56 34 | 90 N. |
| 23 | ε Arietis - | 5 | 8 27 21 | 2 50 5·29 | N. 20 41 56·2 | N. 22 3 | 66 N. |
| 24 | *b* Pleiadum | 4.5 | 1 46 8 | 3 35 23·75 | 23 36 27·8 | 44 28 | 90 N. |
| 24 | *e* Pleiadum | 5 | 1 53 9 | 3 35 42·48 | 23 57 46·1 | 24 19 | 69 N. |
| 24 | *c* Pleiadum | 5 | 2 7 7 | 3 36 19·75 | N. 23 51 54·0 | N. 32 28 | 80 N. |
| 24 | *d* Pleiadum | 5 | 2 18 52 | 3 36 51·12 | N. 23 26 50·4 | N. 59 27 | 90 N. |
| 24 | η Tauri - - | 3 | 2 44 35 | 3 37 59·78 | 23 36 28·9 | 53 59 | 90 N. |
| 24 | *f* Pleiadum | 5 | 3 22 10 | 3 39 40·29 | 23 33 41·7 | N. 62 49 | 90 N. |
| 25 | β Tauri - - | 2 | 14 40 34 | 5 16 11·54 | N. 28 28 6·2 | S. 15 58 | 29 N. |
| 26 | 136 Tauri - - | 4.5 | 0 32 8 | 5 43 16·86 | N. 27 34 15·0 | N. 51 59 | 90 N. |
| 26 | κ Aurigæ - | 4 | 8 35 5 | 6 5 11·42 | 29 33 10·6 | S. 70 18 | 36 S. |
| 27 | υ Geminor. | 5 | 15 32 9 | 7 26 3·49 | 27 14 51·2 | S. 58 57 | 17 S. |
| 27 | κ Geminor. | 4 | 19 2 40 | 7 34 46·88 | N. 24 46 41·7 | N. 64 37 | 90 N. |
| 28 | γ Cancri - | 5 | 20 5 24 | 8 34 0·91 | N. 22 2 29·1 | N. 5 11 | 49 N. |
| 29 | *q* Cancri - | 6 | 12 31 21 | 9 10 2·06 | 18 22 59·9 | 40 51 | 90 N. |
| 30 | α Leonis - | 1 | 12 53 50 | 9 59 50·31 | 12 44 58·0 | 69 9 | 90 N. |
| 31 | ρ Leonis - | 4 | 1 35 25 | 10 24 22·17 | N. 10 7 50·2 | N. 52 59 | 90 N. |
| 31 | 59 Leonis - | 5.6 | 16 36 11 | 10 52 26·25 | N. 6 57 45·0 | N. 31 31 | 79 N. |
| 31 | χ Leonis - | 4.5 | 18 56 51 | 10 56 44·72 | 8 12 8·2 | S. 76 22 | 44 S. |
| Nov. 1 | τ Leonis - | 4 | 7 35 6 | 11 19 41·55 | N. 3 44 22·2 | N. 9 42 | 54 N. |
| 2 | VENUS - | - | 14 52 34 | 12 15 21·72 | S. 3 56 11·7 | N. 20 10 | 65 N. |

## ELEMENTS

for facilitating the Computation of Occultations of certain Stars by the Moon.

| Day of the Month. | Star's Name. | Magnitude. | Greenwich *Mean Time* of *Apparent* ♂ in R. A. of ☾ and ✱. | At Greenwich Mean Time of ♂ | | | Limiting Parallels. |
|---|---|---|---|---|---|---|---|
| | | | | *Apparent* R. A. of ☾ and ✱. | *Apparent* Declination of ✱. | Diff. of *Apparent* Dec. of ☾ and ✱. | |
| | | | h m s | h m s | ° ′ ″ | ☾ ′ ″ | Latitude. ° ° |
| Nov. 7 | α Scorpii - | 1 | 21 24 39 | 16 19 34·72 | S. 26 4 17·8 | S. 28 24 | 3 S. 80 S. |
| 8 | τ Scorpii - | 3.4 | 0 18 49 | 16 25 54·26 | 27 52 39·8 | N. 65 5 | 62 N. 37 N. |
| 9 | 3 Sagittarii | 5 | 8 23 19 | 17 37 27·98 | 27 45 50·0 | S. 32 47 | 16 S. 89 S. |
| 9 | Sagittarii | 5 | 17 24 1 | 17 57 55·64 | S. 28 28 6·9 | N. 9 21 | 24 N. 34 S. |
| 10 | φ Sagittarii | 4.5 | 9 58 34 | 18 35 38·37 | S. 27 8 59·9 | S. 39 55 | 19 S. 90 S. |
| 10 | σ Sagittarii | 3 | 14 14 30 | 18 45 19·43 | 26 29 23·6 | S. 65 32 | 50 S. 90 S. |
| 10 | τ Sagittarii | 4 | 19 21 59 | 18 56 55·90 | 27 53 56·6 | N. 39 12 | 62 N. 3 S. |
| 11 | 52 Sagittarii | 4.5 | 8 42 28 | 19 26 57·15 | S. 25 13 57·4 | S. 51 12 | 25 S. 90 S. |
| 13 | η Capricorni | 5 | 1 8 40 | 20 55 17·27 | S. 20 29 5·4 | N. 15 10 | 48 N. 30 S. |
| 13 | ι Capricorni | 5 | 9 39 51 | 21 13 19·63 | 17 30 47·8 | S. 64 56 | 29 S. 90 S. |
| 13 | γ Capricorni | 4 | 18 11 52 | 21 31 13·03 | 17 22 56·5 | N. 33 0 | 68 N. 14 S. |
| 13 | δ Capricorni | 3.4 | 21 33 0 | 21 38 12·02 | S. 16 51 1·3 | N. 44 32 | 68 N. 2 S. |
| 14 | μ Capricorni | 5 | 0 36 52 | 21 44 33·88 | S. 14 18 8·7 | S. 67 42 | 29 S. 90 S. |
| 14 | ι Aquarii - | 4.5 | 7 0 32 | 21 57 47·49 | 14 38 37·4 | N. 40 15 | 75 N. 7 S. |
| 14 | σ Aquarii - | 5 | 18 52 14 | 22 22 10·78 | 11 29 41·2 | 22 25 | 62 N. 24 S. |
| 15 | λ Aquarii - | 4 | 5 39 26 | 22 44 16·18 | S. 8 25 45·8 | N. 2 56 | 45 N. 42 S. |
| 15 | 81 Aquarii - | 6 | 9 57 33 | 22 53 4·66 | S. 7 54 59·5 | N. 39 48 | 82 N. 9 S. |
| 15 | 82 Aquarii - | 6 | 10 31 34 | 22 54 14·33 | 7 25 46·5 | 19 35 | 61 N. 27 S. |
| 15 | GEORGIAN | - | 11 46 48 | 22 56 48·46 | 7 35 34·0 | 49 20 | 82 N. 0 |
| 15 | φ Aquarii - | 5 | 16 17 0 | 23 6 2·55 | S. 6 54 34·8 | N. 80 42 | 83 N. 42 N. |
| 17 | 62 Piscium - | 6 | 12 55 38 | 0 39 59·82 | N. 6 25 37·3 | N. 31 45 | 76 N. 16 S. |
| 17 | δ Piscium - | 5 | 13 6 39 | 0 40 23·92 | 6 42 56·0 | 17 33 | 60 N. 28 S. |
| 19 | μ Arietis - | 6 | 13 17 14 | 2 33 21·51 | 19 19 48·2 | 17 16 | 61 N. 20 S. |
| 19 | ε Arietis - | 5 | 19 50 50 | 2 50 5·60 | N. 20 41 57·8 | N. 21 12 | 65 N. 15 S. |
| 20 | g Pleiadum | 5.6 | 12 57 53 | 3 35 19·41 | N. 23 47 3·1 | N. 30 4 | 76 N. 3 S. |
| 20 | b Pleiadum | 4.5 | 12 59 39 | 3 35 24·20 | 23 36 29·5 | 40 55 | 90 N. 6 N. |
| 20 | e Pleiadum | 5 | 13 6 34 | 3 35 42·93 | 23 57 47·9 | 20 45 | 65 N. 11 S. |
| 20 | c Pleiadum | 5 | 13 20 21 | 3 36 20·20 | N. 23 51 55·7 | N. 28 53 | 75 N. 4 S. |
| 20 | d Pleiadum | 5 | 13 31 56 | 3 36 51·57 | N. 23 26 52·1 | N. 55 50 | 90 N. 21 N. |
| 20 | η Tauri - - | 3 | 13 57 17 | 3 38 0·23 | 23 36 30·6 | 50 19 | 90 N. 15 N. |
| 20 | f Pleiadum | 5 | 14 34 20 | 3 39 40·75 | 23 33 43·4 | N. 59 3 | 90 N. 24 N. |
| 22 | β Tauri - - | 2 | 1 7 22 | 5 16 12·25 | N. 28 28 7·2 | S. 24 28 | 21 N. 39 S. |
| 22 | 136 Tauri - - | 4.5 | 10 42 0 | 5 43 17·63 | N. 27 34 11·8 | N. 42 23 | 90 N. 22 N. |
| 24 | υ Geminor. | 5 | 0 26 46 | 7 26 4·42 | 27 14 49·3 | S. 72 29 | 38 S. 63 S. |
| 24 | κ Geminor. | 4 | 3 50 20 | 7 34 47·80 | 24 46 39·4 | N. 50 48 | 90 N. 20 N. |
| 25 | γ Cancri - | 5 | 4 5 26 | 8 34 1·85 | N. 22 2 25·5 | S. 10 22 | 34 N. 41 S. |

## ELEMENTS

for facilitating the Computation of Occultations of certain Stars by the M

| Day of the Month. | Star's Name. | Magnitude. | Greenwich *Mean Time* of *Apparent* ♂ in R. A. of ☾ and ✱. | At Greenwich Mean Time of ♂ *Apparent* R. A. of ☾ and ✱. | *Apparent* Declination of ✱. | Diff. of *Apparent* Dec. of ☾ and ✱. | I P |
|---|---|---|---|---|---|---|---|
| | | | h m s | h m s | ° ′ ″ | ☾ ′ ″ | ° |
| Nov. 26 | α Leonis - | 1 | 19 51 22 | 9 59 51·19 | N.12 44 52·9 | N.52 23 | 90 |
| 27 | p Leonis - | 4 | 8 18 50 | 10 24 23·03 | 10 7 45·0 | N.36 17 | 86 |
| 28 | τ Leonis - | 4 | 13 55 50 | 11 19 42·38 | N. 3 44 16·9 | S. 5 54 | 39 |
| Dec. 1 | 68 Virginis - | 5 | 8 13 13 | 13 18 15·73 | S.11 52 16·7 | N. 4 14 | 45 |
| 1 | 85 Virginis - | 6 | 18 26 3 | 13 36 57·29 | S.14 57 32·6 | N.59 56 | 75 |
| 7 | φ Sagittarii | 4.5 | 15 41 47 | 18 35 38·30 | 27 8 58·9 | S.30 10 | 9 |
| 7 | σ Sagittarii | 3 | 19 56 50 | 18 45 19·35 | 26 29 22·7 | S.55 19 | 35 |
| 8 | τ Sagittarii | 4 | 1 3 26 | 18 56 55·79 | S.27 53 55·7 | N.49 59 | 62 |
| 8 | 52 Sagittarii | 4.5 | 14 22 57 | 19 26 56·98 | S.25 13 56·9 | S.38 59 | 12 |
| 10 | η Capricorni | 5 | 7 2 28 | 20 55 16·99 | 20 29 5·9 | N.31 14 | 64 |
| 10 | ι Capricorni | 5 | 15 40 18 | 21 13 19·33 | 17 30 48·7 | S.48 12 | 9 |
| 11 | γ Capricorni | 4 | 0 20 31 | 21 31 12·73 | S.17 22 57·5 | N.50 18 | 73 |
| 11 | δ Capricorni | 3.4 | 3 45 16 | 21 38 11·71 | S.16 51 2·4 | N.62 3 | 73 |
| 11 | μ Capricorni | 5 | 6 52 39 | 21 44 33·58 | 14 18 9·9 | S.50 2 | 8 |
| 11 | ι Aquarii - | 4.5 | 13 24 17 | 21 57 47·17 | 14 38 38·7 | N.58 14 | 75 |
| 12 | σ Aquarii - | 5 | 1 33 0 | 22 22 10·47 | S.11 29 42·7 | N.40 49 | 78 |
| 12 | λ Aquarii - | 4 | 12 37 59 | 22 44 15·87 | S. 8 25 47·4 | N.21 30 | 63 |
| 12 | GEORGIAN - | | 19 14 27 | 22 57 24·13 | S. 7 30 42·3 | 67 40 | 82 |
| 14 | δ Piscium - | 5 | 22 0 15 | 0 40 23·72 | N. 6 42 54·8 | 33 10 | 78 |
| 17 | 47 Arietis - | 6 | 6 3 21 | 2 48 56·15 | N.20 1 40·1 | N.63 9 | 90 |
| 17 | ε Arietis - | 5 | 6 31 0 | 2 50 5·65 | N.20 41 58·4 | N.28 29 | 74 |
| 18 | *b* Pleiadum | 4.5 | 0 1 20 | 3 35 24·36 | 23 36 30·5 | 45 7 | 90 |
| 18 | *e* Pleiadum | 5 | 0 8 22 | 3 35 43·10 | 23 57 48·9 | 24 56 | 70 |
| 18 | *c* Pleiadum | 5 | 0 22 23 | 3 36 20·37 | N.23 51 56·7 | N.33 1 | 81 |
| 18 | *d* Pleiadum | 5 | 0 34 10 | 3 36 51·74 | N.23 26 53·0 | N.59 56 | 90 |
| 18 | η Tauri - - | 3 | 0 59 56 | 3 38 0·41 | 23 36 31·5 | 54 20 | 90 |
| 18 | *f* Pleiadum | 5 | 1 37 36 | 3 39 40·93 | 23 33 44·3 | N.62 58 | 90 |
| 19 | β Tauri - - | 2 | 12 27 20 | 5 16 12·72 | N.28 28 8·2 | S.26 40 | 19 |
| 19 | 136 Tauri - | 4.5 | 22 0 27 | 5 43 18·18 | N.27 34 12·4 | N.38 34 | 90 |
| 21 | A Geminor. | 6 | 6 37 26 | 7 13 44·75 | 25 21 12·9 | 63 40 | 90 |
| 21 | κ Geminor. | 4 | 14 35 29 | 7 34 48·60 | 24 46 37·8 | N.40 37 | 90 |
| 22 | γ Cancri - | 5 | 14 15 46 | 8 34 2·74 | N.22 2 22·5 | S.23 47 | 22 |
| 24 | α Leonis - | 1 | 4 54 48 | 9 59 52·09 | N.12 44 47·9 | N.35 5 | 84 |
| 24 | 45 Leonis - | 6 | 14 25 30 | 10 19 12·61 | 10 34 33·3 | 29 5 | 75 |
| 24 | p Leonis - | 4 | 17 1 34 | 10 24 23·97 | 10 7 39·5 | 18 13 | 62 |
| 24 | 49 Leonis - | 6 | 18 9 39 | 10 26 39·04 | N. 9 28 32·8 | N.40 48 | 90 |

## ELEMENTS

For facilitating the Computation of Occultations of certain Stars by the Moon.

| May the Month. | Star's Name. | Magnitude. | Greenwich Mean Time of Apparent ♂ in R. A. of ☾ and ✱. | At Greenwich Mean Time of ♂ | | | Limiting Parallels. |
|---|---|---|---|---|---|---|---|
| | | | | Apparent R. A. of ☾ and ✱. | Apparent Declination of ✱. | Diff. of Apparent Dec. of ☾ and ✱. | |
| | | | h m s | h m s | ° ′ ″ | ☾ ′ ″ | Latitude. ° ° |
| Dec. 25 | τ Leonis - | 4 | 21 54 24 | 11 19 43·29 | N. 3 44 11·0 | S. 24 46 | 22 N. 69 S. |
| 28 | 68 Virginis - | 5 | 15 14 29 | 13 18 16·63 | S. 11 52 21·7 | S. 11 39 | 30 N. 56 S. |
| 31 | 1 Scorpii - | 5 | 16 28 55 | 15 41 21·36 | 25 15 32·0 | N. 29 10 | 56 N. 14 S. |
| 31 | 2 Scorpii - | 5 | 17 44 11 | 15 44 0·44 | S. 24 50 36·4 | S. 4 40 | 22 N. 49 S. |
| 31 | π Scorpii - | 3.4 | 20 10 14 | 15 49 10·39 | S. 25 38 49·2 | N. 26 47 | 53 N. 17 S. |

## ECLIPSES OF THE SUN.

In the Year 1839 there will be only two Eclipses, both of the Sun

I.—*A Total Eclipse of the SUN, March* 14—15, 1839, *visible at Greenwi*

Begins on the Earth generally March $14^d$ $23^h$ $34^m{\cdot}3$, Mean Time at Gr
in Longitude 82° 38′ W. of Greenwich and Latitude 31° 16′ S.

Central and Total Eclipse begins generally March $15^d$ $0^h$ $30^m{\cdot}1$.
in Longitude 96° 37′ W. of Greenwich and Latitude 32° 24′ S.

Central and Total Eclipse at Noon March $15^d$ $2^h$ $10^m{\cdot}0$.
in Longitude 30° 13′ W. of Greenwich and Latitude 5° 59′ S.

Central and Total Eclipse ends generally March $15^d$ $3^h$ $56^m{\cdot}5$.
in Longitude 32° 6′ E. of Greenwich and Latitude 25° 55′ N.

Ends on the Earth generally and March $15^d$ $4^h$ $52^m{\cdot}2$.
in Longitude 18° 5′ E. of Greenwich in Latitude 27° 3′ N.

At Greenwich a Partial Eclipse only is visible, and

| | | | | |
|---|---|---|---|---|
| Begins - - - | March $15^d$ | $3^h$ | $23^m{\cdot}4$ | Mean Time at Greenwich. |
| Greatest Phase | ——— | 3 | 43·9 | |
| Ends - - - - | ——— | 4 | 4·4 | |

Magnitude of the Eclipse (Sun's diameter = 1) 0·05, on the Southern

| | | | |
|---|---|---|---|
| Angle from North Pole of | first contact | 164° | towards the East. |
| | last contact | 127° | |
| Angle from Vertex of | first contact | 131° | |
| | last contact | 94° | |

# MEAN TIME.

## APRIL.

| d | h | m | | ° | ′ |
|---|---|---|---|---|---|
| 3 | 5 | 41 | ♀ in ♌ | | |
| 3 | 18 | 56 | ♃ ☍ ☉ | | |
| 3 | 20 | 20 | ♄ ☌ ☾ - - - ♄ | 7 | 7 N. |
| 6 | 7 | 8 | ☊ ☍ ☉ intens. of light 1·331 | | |
| 7 | 1 | 54 | ☿ greatest Hel. Lat. N. | | |
| 7 | 8 | 31 | ☿ greatest elong. | 19 | 14 E. |
| 7 | 22 | 36 | ♋ ☌ ε Geminor. ✱ | 0 | 10 S. |
| 10 | 21 | 13 | ♅ ☌ ☾ - - - ♅ | 0 | 13 N. |
| 11 | 23 | 19 | ♂ ☌ χ Leonis ✱ | 1 | 35 S. |
| 14 | 15 | 29 | ☿ ☌ ☾ - - - ☿ | 0 | 48 S. |
| 15 | 12 | 52 | ♀ ☌ ☾ - - - ♀ | 4 | 4 S. |
| 17 | 2 | 4 | ☿ Stationary. | | |
| 21 | 9 | 36 | ♅ ☌ φ Aquarii ✱ | 0 | 19 S. |
| 21 | 17 | 37 | ♀ ☌ A¹ Tauri ✱ | 0 | 23 N. |
| 23 | 13 | 21 | ♂ ☌ ☾ - - - ♂ | 1 | 14 N. |
| 23 | 14 | 5 | ♂ Stationary. | | |
| 25 | 23 | 42 | ♀ ☌ υ¹ Tauri ✱ | 0 | 1 N. |
| 26 | 3 | 59 | ♃ ☌ ☾ - - - ♃ | 3 | 27 N. |
| 27 | 8 | 44 | ☿ in Inf. ☌ ☉ | | |
| 29 | 2 | 30 | ♀ ☌ τ Tauri ✱ | 0 | 31 S. |
| 30 | 13 | 43 | ☿ in ♌ | | |
| 30 | 17 | 36 | ♆ ☌ ♅ - - - ♆ | 5 | 26 N. |
| 30 | 23 | 56 | ♄ ☌ ☾ - - - ♄ | 7 | 2 N. |

## MAY.

| d | h | m | | ° | ′ |
|---|---|---|---|---|---|
| 5 | 19 | 12 | ♂ ☌ χ Leonis ✱ | 0 | 30 S. |
| 6 | 0 | 0 | ♅ greatest Hel. Lat. S. | | |
| 6 | 11 | 0 | ♀ in Perihelion. | | |
| 8 | 8 | 27 | ♅ ☌ ☾ - - - ♅ | 0 | 4 S. |
| 9 | 15 | 7 | ☿ Stationary. | | |
| 10 | 17 | 6 | ☿ in Aphelion. | | |
| 11 | 14 | 14 | ☿ ☌ ☾ - - - ☿ | 6 | 20 S. |
| 11 | 22 | 9 | ♀ ☌ B Tauri ✱ | 0 | 34 S. |
| 14 | 19 | 56 | ♀ ☌ H Geminor. ✱ | 1 | 59 S. |
| 15 | 7 | 55 | ♀ ☌ ☾ - - - ♀ | 3 | 14 S. |
| 17 | 10 | 52 | ♆ ☌ λ Piscium ✱ | 0 | 17 S. |
| 18 | 7 | 4 | ♋ ☌ κ Geminor. ✱ | 0 | 15 N. |
| 21 | 0 | 0 | ♆ Stationary. | | |

## MAY.

| d | h | m | | ° | ′ |
|---|---|---|---|---|---|
| 21 | 4 | 31 | ♂ ☌ ☾ - - - ♂ | 0 | 44 N. |
| 22 | 10 | 55 | ♀ ☌ ε Geminor. ✱ | 0 | 3 N. |
| 23 | 5 | 59 | ♃ ☌ ☾ - - - ♃ | 3 | 18 N. |
| 24 | 18 | 45 | ☿ greatest elong. | 24 | 47 W. |
| 24 | 22 | 12 | ♂ ☌ σ Leonis ✱ | 0 | 36 N. |
| 27 | 10 | 6 | ♄ ☌ ω Ophiuchi ✱ | 1 | 32 S. |
| 28 | 0 | 0 | ☊ Stationary. | | |
| 28 | 2 | 25 | ♄ ☌ ☾ - - - ♄ | 6 | 56 N. |
| 28 | 15 | 35 | ♄ ☍ ☉ | | |
| 28 | 17 | 27 | ♀ greatest Hel. Lat. N. | | |
| 30 | 14 | 51 | ♂ ☌ τ Leonis ✱ | 1 | 40 S. |
| 31 | 3 | 30 | ☿ greatest Hel. Lat. S. | | |

## JUNE.

| d | h | m | | ° | ′ |
|---|---|---|---|---|---|
| 3 | 9 | 16 | ♀ ☌ κ Geminor. ✱ | 0 | 55 N. |
| 4 | 16 | 39 | ♅ ☌ ☾ - - - ♅ | 0 | 24 S. |
| 6 | 2 | 54 | ♃ Stationary. | | |
| 7 | 9 | 11 | ♅ □ ☉ | | |
| 9 | 21 | 16 | ☿ ☌ ☾ - - - ☿ | 6 | 36 S. |
| 11 | 3 | 36 | ♄ ☌ χ Ophiuchi ✱ | 1 | 20 N. |
| 12 | 8 | 49 | ♀ ☌ ♋ - - - ♋ | 1 | 2 N. |
| 14 | 4 | 47 | ♀ ☌ ☾ - - - ♀ | 1 | 35 S. |
| 15 | 11 | 7 | ♂ ☌ β Virginis ✱ | 0 | 8 N. |
| 15 | 15 | 56 | ♀ ☌ γ Cancri ✱ | 1 | 8 N. |
| 17 | 3 | 35 | ♂ □ ☉ | | |
| 18 | 9 | 41 | ♂ ☌ ☾ - - - ♂ | 1 | 12 N. |
| 19 | 3 | 14 | ☿ in ♌ | | |
| 19 | 13 | 15 | ♃ ☌ ☾ - - - ♃ | 3 | 25 N. |
| 20 | 21 | 44 | ♋ ☌ γ Cancri ✱ | 0 | 3 S. |
| 21 | 12 | 0 | ♅ Stationary. | | |
| 21 | 16 | 1 | ☉ enters ♋. Summer comm'. | | |
| 23 | 0 | 0 | ♆ ☌ ☊ - - - ♆ | 17 | 37 N. |
| 23 | 7 | 30 | ♄ ☌ ψ Ophiuchi ✱ | 0 | 21 S. |
| 23 | 16 | 45 | ☿ in Perihelion. | | |
| 24 | 5 | 48 | ♄ ☌ ☾ - - - ♄ | 6 | 55 N. |
| 26 | 21 | 47 | ☿ in Sup. ☌ ☉ | | |
| 28 | 1 | 59 | ♆ □ ☉ | | |

II.—*An Annular Eclipse of the SUN, Sept. 7, 1839, invisible at Green*

Begins on the Earth generally Sept. $7^d$ $7^h$ $24^m{\cdot}1$, Mean Time at Green
in Longitude 154° 29′ E. of Greenwich and Latitude 33° 14′ N.

Central and Annular Eclipse begins generally Sept. $7^d$ $8^h$ $28^m{\cdot}9$.
in Longitude 137° 50′ E. of Greenwich and Latitude 35° 59′ N.

Central and Annular Eclipse at Noon Sept. $7^d$ $10^h$ $14^m{\cdot}4$.
in Longitude 154° 7′ W. of Greenwich and Latitude 14° 49′ N.

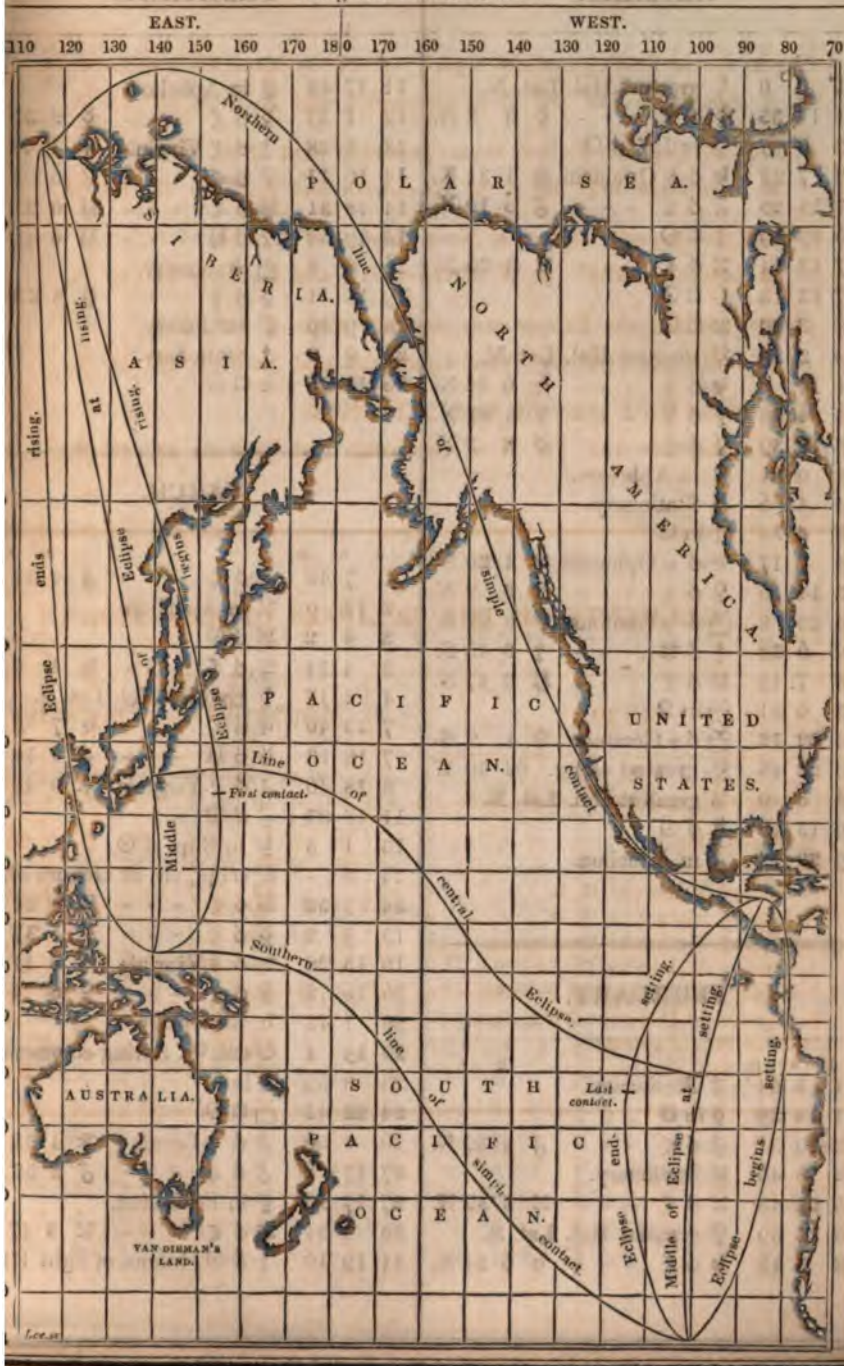
Central and Annular Eclipse ends generally Sept. $7^d$ $12^h$ $16^m{\cdot}3$.
in Longitude 96° 55′ W. of Greenwich and Latitude 20° 50′ S

Ends on the Earth generally Sept. $7^d$ $13^h$ $21^m{\cdot}2$.
in Longitude 113° 28′ W. of Greenwich and Latitude 23° 35′ S

## ELEMENTS OF THE ECLIPSES OF THE SUN

| 1839. | March 14—15. | | Sep |
|---|---|---|---|
| | d h m s | | |
| Greenwich Mean Time of ♂ in R.A. - - | 15 2 10 2·6 | | 1 |
| | ° ′ ″ | | |
| ☽'s Declination - - - - - - - - - | S. 2 19 6·3 | N. | ( |
| ☉'s Declination - - - - - - - - - | S. 2 15 11·1 | N. | ( |
| ☽'s Horary Motion in R. A. - - - - - | 33 7·7 | | |
| ☉'s Horary Motion in R. A. - - - - - | 2 17·1 | | |
| ☽'s Horary Motion in Declination - - - | N. 18 5·4 | S. | |
| ☉'s Horary Motion in Declination - - - | N. 0 59·2 | S. | |
| ☽'s Equatorial Horizontal Parallax- - - | 60 58·1 | | |
| ☉'s Equatorial Horizontal Parallax- - - | 8·6 | | |
| ☽'s True Semidiameter - - - - - - - | 16 36·8 | | |
| ☉'s True Semidiameter - - - - - - - | 16 5·6 | | |

TRACK OF THE MOON'S PENUMBRA UPON THE SURFACE OF THE EARTH, DURING THE ANNULAR SOLAR ECLIPSE OF SEPTEMBER 7, 1839.



## MEAN TIME.

### JANUARY.

| d | h | m | | ° | ′ |
|---|---|---|---|---|---|
| 1 | 0 | 0 | ♀ greatest Hel. Lat. N. | | |
| 1 | 14 | 35 | ☿ ☌ ♀ - - - ☿ | 3 | 8 N. |
| 3 | 0 | 7 | ☿ in Inf. ☌ ☉ | | |
| 3 | 7 | 23 | ♄ ☌ χ Ophiuchi ✱ | 1 | 31 N. |
| 5 | 18 | 23 | ♂ ☌ ☾ - - - ♂ | 3 | 10 N. |
| 6 | 19 | 49 | ♃ □ ☉ | | |
| 7 | 13 | 14 | ♃ ☌ ☾ - - - ♃ | 3 | 26 N. |
| 7 | 15 | 13 | ♀ □ ☉ | | |
| 8 | 3 | 29 | ♃ □ ☉ | | |
| 9 | 2 | 39 | ☿ greatest Hel. Lat. N. | | |
| 11 | 14 | 0 | ♄ ☌ ☾ - - - ♄ | 6 | 38 N. |
| 13 | 4 | 39 | ♀ ☌ ♅ - - - ♅ | 8 | 28 N. |
| 13 | 13 | 39 | ☿ ☌ ☾ - - - ☿ | 8 | 3 N. |
| 14 | 0 | 31 | ♀ in Aphelion. | | |
| 14 | 4 | 6 | ☿ Stationary. | | |
| 15 | 4 | 34 | ♃ in ♌ | | |
| 15 | 7 | 17 | ♄ ☌ ω Ophiuchi ✱ | 1 | 20 S. |
| 15 | 14 | 16 | ♀ ☌ ☾ - - - ♀ | 3 | 2 N. |
| 15 | 22 | 8 | ♃ ☌ μ Geminor. ✱ | 0 | 29 S. |
| 18 | 6 | 52 | ♃ ☌ ♃ - - - ♃ | 0 | 46 S. |
| 18 | 7 | 19 | ♅ ☌ ☾ - - - ♅ | 0 | 47 N. |
| 23 | 6 | 51 | ♃ in ♌ | | |
| 25 | 22 | 12 | ♃ ☌ η Geminor. ✱ | 1 | 2 S. |
| 25 | 22 | 43 | ☿ greatest elong. | 24 | 50 W. |
| 26 | 0 | 0 | ♃ greatest Hel. Lat. N. | | |
| 26 | 15 | 45 | ♅ ☌ ☉ | | |
| 29 | 20 | 19 | ♂ in Aphelion. | | |

### FEBRUARY.

| d | h | m | | ° | ′ |
|---|---|---|---|---|---|
| 1 | 5 | 44 | ♂ Stationary. | | |
| 1 | 14 | 29 | ☿ in ♉ | | |
| 2 | 10 | 51 | ♂ ☌ ☾ - - - ♂ | 4 | 32 N. |
| 2 | 18 | 46 | ♃ Stationary. | | |
| 3 | 23 | 43 | ♃ ☌ ☾ - - - ♃ | 3 | 55 N. |
| 5 | 22 | 59 | ♀ greatest Hel. Lat. S. | | |
| 8 | 3 | 16 | ♄ ☌ ☾ - - - ♄ | 6 | 54 N. |

### FEBRUARY.

| d | h | m | | |
|---|---|---|---|---|
| 11 | 17 | 48 | ☿ in Aphelion. | |
| 12 | 1 | 37 | ☿ ☌ ☾ - - - ☿ | 2 |
| 13 | 3 | 28 | ♃ ☌ ζ Virginis ✱ | 1 |
| 14 | 16 | 11 | ♀ ☌ ☾ - - - ♀ | 0 |
| 14 | 18 | 31 | ♅ ☌ ☾ - - - ♅ | 0 |
| 15 | 19 | 52 | ♀ ☌ ♅ - - - ♅ | 0 |
| 16 | 0 | 0 | ♃ Stationary. | |
| 19 | 15 | 51 | ☿ ☌ ♅ - - - ☿ | 8 |
| 20 | 9 | 36 | ♀ Stationary. | |
| 24 | 0 | 0 | ♃ Stationary. | |
| 28 | 18 | 28 | ♄ □ ☉ | |

### MARCH.

| d | h | m | | |
|---|---|---|---|---|
| 1 | 7 | 42 | ♂ ☌ ☾ - - - ♂ | 4 |
| 2 | 12 | 0 | ♃ in Aphelion. | |
| 3 | 4 | 2 | ♅ ☌ ☉ | |
| 3 | 4 | 34 | ♃ ☌ ☾ - - - ♃ | 4 |
| 4 | 4 | 17 | ☿ greatest Hel. Lat. | |
| 7 | 13 | 40 | ♄ ☌ ☾ - - - ♄ | 7 |
| 7 | 18 | 13 | ☿ ☌ ♅ - - - ☿ | 1 |
| 8 | 18 | 46 | ♂ ☌ ν Virginis ✱ | 0 |
| 11 | 18 | 33 | ♂ ☍ ☉ | |
| 13 | 1 | 5 | ☿ in Sup. ☌ ☉ | |
| 14 | - | - | ☉ eclip., vis. at Green | |
| 14 | 7 | 52 | ♅ ☌ ☾ - - - ♅ | 0 |
| 15 | 7 | 2 | ☿ ☌ ☾ - - - ☿ | 1 |
| 16 | 15 | 22 | ♃ ☌ θ Virginis ✱ | 0 |
| 16 | 16 | 18 | ♀ ☌ ☾ - - - ♀ | 3 |
| 20 | 1 | 43 | ♄ Stationary. | |
| 20 | 19 | 1 | ☉ ent. ♈. Spring comm | |
| 23 | 3 | 59 | ☿ in ♌ | |
| 24 | 22 | 45 | ♃ □ ☉ | |
| 26 | 0 | 56 | ♂ ☌ σ Leonis ✱ | 1 |
| 27 | 17 | 6 | ♂ ☌ ☾ - - - ♂ | 2 |
| 27 | 17 | 29 | ☿ in Perihelion. | |
| 30 | 4 | 51 | ♃ ☌ ☾ - - - ♃ | 3 |
| 31 | 19 | 10 | ♅ ☍ ☉, intens. of light | |

# MEAN TIME.

## APRIL.

| m | | ° ′ |
|---|---|---|
| 41 | ♀ in ♌ | |
| 56 | ♃ ☍ ☉ | |
| 20 | ♄ ☌ ☾ - - - ♄ | 7 7 N. |
| 8 | ☾ ☍ ☉ intens. of light | 1·331 |
| 54 | ☿ greatest Hel. Lat. N. | |
| 31 | ☿ greatest elong. | 19 14 E. |
| 36 | ♋ ☌ ε Geminor. ✱ | 0 10 S. |
| 13 | ♅ ☌ ☾ - - - ♅ | 0 13 N. |
| 19 | ♂ ☌ χ Leonis ✱ | 1 35 S. |
| 29 | ☿ ☌ ☾ - - - ☿ | 0 48 S. |
| 52 | ♀ ☌ ☾ - - - ♀ | 4 4 S. |
| 4 | ☿ Stationary. | |
| 36 | ♅ ☌ φ Aquarii ✱ | 0 19 S. |
| 37 | ♀ ☌ A¹ Tauri ✱ | 0 23 N. |
| 21 | ♂ ☌ ☾ - - - ♂ | 1 14 N. |
| 5 | ♂ Stationary. | |
| 42 | ♀ ☌ υ¹ Tauri ✱ | 0 1 N. |
| 59 | ♃ ☌ ☾ - - - ♃ | 3 27 N. |
| 44 | ☿ in Inf. ☌ ☉ | |
| 30 | ♀ ☌ τ Tauri ✱ | 0 31 S. |
| 43 | ☿ in ♉ | |
| 36 | ⚳ ☌ ♅ - - - ⚳ | 5 26 N. |
| 56 | ♄ ☌ ☾ - - - ♄ | 7 2 N. |

## MAY.

| m | | ° ′ |
|---|---|---|
| 12 | ♂ ☌ χ Leonis ✱ | 0 30 S. |
| 0 | ♅ greatest Hel. Lat. S. | |
| 0 | ♀ in Perihelion. | |
| 27 | ♅ ☌ ☾ - - - ♅ | 0 4 S. |
| 7 | ☿ Stationary. | |
| 6 | ☿ in Aphelion. | |
| 14 | ☿ ☌ ☾ - - - ☿ | 6 20 S. |
| 9 | ♀ ☌ B Tauri ✱ | 0 34 S. |
| 56 | ♀ ☌ H Geminor. ✱ | 1 59 S. |
| 55 | ♀ ☌ ☾ - - - ♀ | 3 14 S. |
| 52 | ⚳ ☌ λ Piscium ✱ | 0 17 S. |
| 4 | ♋ ☌ κ Geminor. ✱ | 0 15 N. |
| 0 | ⚳ Stationary. | |

## MAY.

| d | h | m | | ° ′ |
|---|---|---|---|---|
| 21 | 4 | 31 | ♂ ☌ ☾ - - - ♂ | 0 44 N. |
| 22 | 10 | 55 | ♀ ☌ ε Geminor. ✱ | 0 3 N. |
| 23 | 5 | 59 | ♃ ☌ ☾ - - - ♃ | 3 18 N. |
| 24 | 18 | 45 | ☿ greatest elong. | 24 47 W. |
| 24 | 22 | 12 | ♂ ☌ σ Leonis ✱ | 0 36 N. |
| 27 | 10 | 6 | ♄ ☌ ω Ophiuchi ✱ | 1 32 S. |
| 28 | 0 | 0 | ☾ Stationary. | |
| 28 | 2 | 25 | ♄ ☌ ☾ - - - ♄ | 6 56 N. |
| 28 | 15 | 35 | ♄ ☍ ☉ | |
| 28 | 17 | 27 | ♀ greatest Hel. Lat. N. | |
| 30 | 14 | 51 | ♂ ☌ τ Leonis ✱ | 1 40 S. |
| 31 | 3 | 30 | ☿ greatest Hel. Lat. S. | |

## JUNE.

| d | h | m | | ° ′ |
|---|---|---|---|---|
| 3 | 9 | 16 | ♀ ☌ κ Geminor. ✱ | 0 55 N. |
| 4 | 16 | 39 | ♅ ☌ ☾ - - - ♅ | 0 24 S. |
| 6 | 2 | 54 | ♃ Stationary. | |
| 7 | 9 | 11 | ♅ □ ☉ | |
| 9 | 21 | 16 | ☿ ☌ ☾ - - - ☿ | 6 36 S. |
| 11 | 3 | 36 | ♄ ☌ χ Ophiuchi ✱ | 1 20 N. |
| 12 | 8 | 49 | ♀ ☌ ♋ - - - ♋ | 1 2 N. |
| 14 | 4 | 47 | ♀ ☌ ☾ - - - ♀ | 1 35 S. |
| 15 | 11 | 7 | ♂ ☌ β Virginis ✱ | 0 8 N. |
| 15 | 15 | 56 | ♀ ☌ γ Cancri ✱ | 1 8 N. |
| 17 | 3 | 35 | ♂ □ ☉ | |
| 18 | 9 | 41 | ♂ ☌ ☾ - - - ♂ | 1 12 N. |
| 19 | 3 | 14 | ☿ in ♌ | |
| 19 | 13 | 15 | ♃ ☌ ☾ - - - ♃ | 3 25 N. |
| 20 | 21 | 44 | ♋ ☌ γ Cancri ✱ | 0 3 S. |
| 21 | 12 | 0 | ♅ Stationary. | |
| 21 | 16 | 1 | ☉ enters ♋. Summer comm$^{t}$. | |
| 23 | 0 | 0 | ⚳ ☌ ☾ - - - ⚳ | 17 37 N. |
| 23 | 7 | 30 | ♄ ☌ ψ Ophiuchi ✱ | 0 21 S. |
| 23 | 16 | 45 | ☿ in Perihelion. | |
| 24 | 5 | 48 | ♄ ☌ ☾ - - - ♄ | 6 55 N. |
| 26 | 21 | 47 | ☿ in Sup. ☌ ☉ | |
| 28 | 1 | 59 | ⚳ □ ☉ | |

## MEAN TIME.

### JULY.

| d | h | m | | ° | ′ |
|---|---|---|---|---|---|
| 1 | 15 | 52 | ♃ ☌ δ Piscium ✱ | 0 | 48 N. |
| 1 | 22 | 25 | ♅ ☌ ☾ - - - ♅ | 0 | 42 S. |
| 1 | 23 | 8 | ♃ □ ☉ | | |
| 2 | 15 | 16 | ♂ ☌ η Virginis ✱ | 1 | 18 N. |
| 3 | 17 | 43 | ☉ in Apogee. | | |
| 4 | 1 | 9 | ☿ greatest Hel. Lat. N. | | |
| 4 | 23 | 30 | ♃ □ ☉ | | |
| 5 | 8 | 13 | ♀ ☌ α Leonis ✱ | 0 | 59 S. |
| 8 | 2 | 9 | ♀ □ ☉ | | |
| 11 | 12 | 43 | ♀ ☌ ρ Leonis ✱ | 0 | 55 S. |
| 11 | 16 | 2 | ☿ ☌ ☾ - - - ☿ | 1 | 46 S. |
| 12 | 8 | 15 | ♂ in ♉ | | |
| 12 | 17 | 40 | ♃ ☌ ε Piscium ✱ | 0 | 27 N. |
| 14 | 2 | 33 | ♀ ☌ ☾ - - - ♀ | 0 | 10 S. |
| 16 | 23 | 30 | ♂ ☌ ☾ - - - ♂ | 2 | 13 N. |
| 17 | 1 | 43 | ♃ ☌ ☾ - - - ♃ | 3 | 45 N. |
| 17 | 6 | 36 | ♃ ☌ e Piscium ✱ | 1 | 58 S. |
| 19 | 9 | 46 | ♂ ☌ ♃ - - - ♂ | 1 | 29 S. |
| 20 | 1 | 48 | ☿ ☌ ♋ - - - ☿ | 2 | 41 S. |
| 20 | 4 | 33 | ♀ ☌ χ Leonis ✱ | 1 | 6 N. |
| 20 | 22 | 35 | ♃ in ♉ | | |
| 21 | 11 | 24 | ♄ ☌ ☾ - - - ♄ | 6 | 58 N. |
| 23 | 19 | 4 | ♀ in ♉ | | |
| 24 | 18 | 15 | ♀ ☌ σ Leonis ✱ | 1 | 57 N. |
| 25 | 21 | 6 | ☿ ☌ α Leonis ✱ | 0 | 13 N. |
| 26 | 18 | 7 | ♀ ☌ τ Leonis ✱ | 0 | 17 S. |
| 27 | 12 | 58 | ☿ in ♉ | | |
| 27 | 14 | 40 | ♀ greatest elong. | 45 | 42 E. |
| 29 | 3 | 32 | ♅ ☌ ☾ - - - ♅ | 0 | 51 S. |
| 31 | 4 | 20 | ☿ ☌ ρ Leonis ✱ | 0 | 48 N. |

### AUGUST.

| d | h | m | | ° | ′ |
|---|---|---|---|---|---|
| 2 | 16 | 7 | ♀ ☌ β Virginis ✱ | 1 | 53 N. |
| 3 | 15 | 53 | ♂ ☌ α Virginis ✱ | 1 | 48 S. |
| 5 | 9 | 28 | ☿ greatest elong. | 27 | 20 E. |
| 6 | 16 | 21 | ☿ in Aphelion. | | |
| 7 | 4 | 8 | ♃ ☌ μ Piscium ✱ | 1 | 29 S. |

### AUGUST.

| d | h | m | | ° |
|---|---|---|---|---|
| 8 | 6 | 44 | ♄ Stationary. | |
| 11 | 0 | 30 | ☿ ☌ ☾ - - - ☿ | 3 |
| 12 | 16 | 27 | ♀ ☌ ☾ - - - ♀ | 0 |
| 13 | 17 | 53 | ♃ ☌ ☾ - - - ♃ | 4 |
| 14 | 18 | 24 | ♂ ☌ ☾ - - - ♂ | 3 |
| 17 | 19 | 25 | ♄ ☌ ☾ - - - ♄ | 7 |
| 18 | 17 | 9 | ☿ Stationary. | |
| 19 | 4 | 0 | ♂ ☌ ♀ - - - ♀ | 6 |
| 20 | 12 | 19 | ♃ ☌ θ Virginis ✱ | 0 |
| 23 | 16 | 0 | ♃ ☌ ν Piscium ✱ | 1 |
| 23 | 16 | 0 | ♂ ☌ ♃ - - - ♃ | 26 |
| 24 | 13 | 20 | ♅ ☌ φ Aquarii ✱ | 0 |
| 25 | 9 | 47 | ♅ ☌ ☾ - - - ♅ | 0 |
| 26 | 11 | 36 | ♂ ☌ λ Virginis ✱ | 1 |
| 26 | 19 | 18 | ♀ in Aphelion. | |
| 27 | 2 | 46 | ☿ greatest Hel. Lat. S. | |
| 27 | 13 | 23 | ♄ □ ☉ | |
| 28 | 12 | 55 | ♀ ☌ κ Virginis ✱ | 1 |
| 29 | 23 | 56 | ♀ at greatest brilliancy. | |
| 30 | 18 | 28 | ☿ ☌ ♋ - - - ♋ | 9 |

### SEPTEMBER.

| d | h | m | | ° |
|---|---|---|---|---|
| 1 | 16 | 12 | ♋ ☌ ☉ | |
| 2 | 1 | 3 | ☿ in Inf. ☌ ☉ | |
| 6 | 14 | 10 | ☿ ☌ ☾ - - - ☿ | 4 |
| 7 | - | - | ☉ eclipsed, invis. at Green | |
| 7 | 7 | 30 | ♅ ☍ ☉ | |
| 7 | 19 | 7 | ♂ ☌ α² Libræ ✱ | 1 1 |
| 10 | 4 | 13 | ♀ ☌ ☾ - - - ♀ | 4 |
| 10 | 11 | 57 | ♃ ☌ ☾ - - - ♃ | 4 3 |
| 10 | 15 | 26 | ☿ Stationary. | |
| 11 | 4 | 48 | ♃ Stationary. | |
| 12 | 16 | 1 | ♂ ☌ ☾ - - - ♂ | 3 5 |
| 13 | 2 | 21 | ♀ Stationary. | |
| 14 | 5 | 16 | ♄ ☌ ☾ - - - ♄ | 6 5 |
| 15 | 2 | 31 | ☿ in ♌ | |
| 18 | 2 | 53 | ☿ greatest elong. | 17 5 |

## MEAN TIME.

### SEPTEMBER.

| d | h | m | | ° | ′ |
|---|---|---|---|---|---|
| 3 | 15 | 50 | ♀ greatest Hel. Lat. S. | | |
| 9 | 16 | 0 | ☿ in Perihelion. | | |
| 1 | 17 | 53 | ♅ ☌ ☾ - - - ♅ | 0 | 42 S. |
| 2 | 0 | 0 | ♄ ☌ ψ Ophiuchi ✱ | 0 | 1 S. |
| 3 | 5 | 59 | ☉ enters ♎. Autumn comm$^{s}$. | | |
| 5 | 3 | 53 | ♂ ☌ κ Libræ ✱ | 1 | 0 N. |
| 8 | 11 | 13 | ♀ ☌ $\xi^2$ Libræ ✱ | 1 | 48 N. |
| 9 | 10 | 26 | ☿ ☌ ☍ - - - ☿ | 2 | 52 S. |
| 0 | 0 | 25 | ☿ greatest Hel. Lat. N. | | |
| 0 | 1 | 30 | ♂ ☌ λ Libræ ✱ | 1 | 8 N. |

### OCTOBER.

| d | h | m | | ° | ′ |
|---|---|---|---|---|---|
| 2 | 6 | 0 | ♄ ☌ χ Ophiuchi ✱ | 1 | 43 N. |
| 2 | 9 | 13 | ♂ ☌ δ Scorpii ✱ | 0 | 58 S. |
| 4 | 14 | 29 | ♂ ☌ $\omega^1$ Scorpii ✱ | 1 | 18 N. |
| 4 | 19 | 2 | ♂ ☌ $\omega^2$ Scorpii ✱ | 1 | 8 N. |
| 5 | 14 | 29 | ♀ in Inf. ☌ ☉ | | |
| 6 | 14 | 57 | ☿ ☌ ☾ - - - ☿ | 3 | 57 N. |
| 6 | 16 | 58 | ♀ ☌ ☾ - - - ♀ | 6 | 16 S. |
| 7 | 1 | 36 | ☿ ☌ ♀ - - - ☿ | 10 | 14 N. |
| 8 | 6 | 34 | ♃ ☌ ☾ - - - ♃ | 4 | 52 N. |
| 0 | 17 | 51 | ♂ ☌ g Ophiuchi ✱ | 0 | 40 S. |
| 1 | 14 | 55 | ♂ ☌ ☾ - - - ♂ | 4 | 7 N. |
| 1 | 16 | 7 | ♄ ☌ ☾ - - - ♄ | 6 | 47 N. |
| 2 | 1 | 32 | ☤ ☌ ☉, intens. of light 4·053 | | |
| 2 | 13 | 53 | ♂ ☌ ♄ - - - ♂ | 2 | 40 S. |
| 2 | 21 | 56 | ♂ ☌ ω Ophiuchi ✱ | 1 | 34 N. |
| 5 | 6 | 0 | ♄ ☌ ω Ophiuchi ✱ | 1 | 5 S. |
| 5 | 15 | 42 | ☿ in Sup. ☌ ☉ | | |
| 7 | 6 | 52 | ♀ ☌ ☍ - - - ☍ | 11 | 37 N. |
| 9 | 3 | 3 | ♅ ☌ ☾ - - - ♅ | 0 | 40 S. |
| 9 | 13 | 52 | ☿ ☌ ♃ - - - ☿ | 0 | 39 S. |
| 2 | 16 | 36 | ♃ ☌ ☉ | | |
| 3 | 0 | 0 | ♀ ☌ γ Libræ ✱ | 1 | 49 N. |
| 3 | 12 | 14 | ☿ in ♏ | | |
| 4 | 2 | 56 | ♀ Stationary. | | |
| 8 | 13 | 58 | ♂ ☌ θ Ophiuchi ✱ | 0 | 39 S. |
| 1 | 12 | 12 | ♂ ☌ $e^2$ Ophiuchi ✱ | 0 | 31 N. |

### NOVEMBER.

| d | h | m | | ° | ′ |
|---|---|---|---|---|---|
| 2 | 14 | 53 | ♀ ☌ ☾ - - - ♀ | 0 | 20 S. |
| 2 | 15 | 35 | ☿ in Aphelion. | | |
| 5 | 1 | 1 | ♃ ☌ ☾ - - - ♃ | 5 | 13 N. |
| 7 | 3 | 9 | ☿ ☌ ☾ - - - ☿ | 3 | 25 N. |
| 8 | 3 | 34 | ♄ ☌ ☾ - - - ♄ | 6 | 35 N. |
| 9 | 3 | 16 | ♂ ☌ 4 Sagittarii ✱ | 0 | 51 N. |
| 9 | 14 | 36 | ♂ ☌ ☾ - - - ♂ | 3 | 41 N. |
| 9 | 14 | 56 | ☿ ☌ ♀ - - - ☿ | 3 | 56 S. |
| 9 | 18 | 16 | ☿ ☌ ♆ - - - ☿ | 26 | 57 S. |
| 10 | 16 | 24 | ♀ at greatest brilliancy. | | |
| 13 | 0 | 0 | ♆ ☌ ♀ - - - ♆ | 23 | 9 N. |
| 13 | 22 | 27 | ♀ in ♐ | | |
| 15 | 11 | 47 | ♅ ☌ ☾ - - - ♅ | 0 | 49 S. |
| 16 | 4 | 55 | ☿ ☌ ♄ - - - ☿ | 3 | 45 S. |
| 17 | 13 | 22 | ♂ ☌ λ Sagitt. ✱ | 0 | 53 S. |
| 20 | 0 | 0 | ☤ Stationary. | | |
| 22 | 0 | 20 | ☿ ☌ θ Ophiuchi ✱ | 0 | 39 N. |
| 22 | 6 | 57 | ♅ Stationary. | | |
| 23 | 1 | 10 | ♀ ☌ θ Virginis ✱ | 0 | 34 N. |
| 23 | 2 | 1 | ☿ greatest Hel. Lat. S. | | |
| 24 | 18 | 22 | ♆ ☌ ☉ | | |
| 25 | 10 | 13 | ♂ ☌ $\nu^1$ Sagitt. ✱ | 1 | 22 N. |
| 25 | 17 | 0 | ♂ ☌ $\nu^2$ Sagitt. ✱ | 1 | 25 N. |
| 30 | 7 | 15 | ☿ greatest elong. | 21 | 16 E. |

### DECEMBER.

| d | h | m | | ° | ′ |
|---|---|---|---|---|---|
| 1 | 14 | 16 | ♀ ☌ ☾ - - - ♀ | 5 | 57 N. |
| 2 | 14 | 38 | ♀ ☌ ☉ | | |
| 2 | 18 | 59 | ♃ ☌ ☾ - - - ♃ | 5 | 35 N. |
| 4 | 20 | 0 | ♀ ☌ ☍ - - - ☍ | 3 | 39 N. |
| 4 | 20 | 38 | ♅ □ ☉ | | |
| 5 | 2 | 0 | ♄ ☌ ☉ | | |
| 5 | 15 | 39 | ♄ ☌ ☾ - - - ♄ | 6 | 28 N. |
| 7 | 7 | 59 | ☿ ☌ ☾ - - - ☿ | 3 | 19 N. |
| 7 | 10 | 51 | ☿ ☌ λ Sagitt. ✱ | 0 | 52 S. |
| 8 | 15 | 12 | ♂ ☌ ☾ - - - ♂ | 2 | 40 N. |
| 8 | 21 | 48 | ☿ Stationary. | | |
| 11 | 6 | 17 | ♀ ☌ κ Virginis ✱ | 0 | 16 N. |

## MEAN TIME.

### DECEMBER.

| d | h | m | | ° | ′ |
|---|---|---|---|---|---|
| 12 | 1 | 47 | ☿ in ♌ | | |
| 12 | 19 | 14 | ♅ ☌ ☾ - - - ♅ | 1 | 8 S. |
| 16 | 0 | 0 | ♂ greatest Hel. Lat. S. | | |
| 16 | 5 | 17 | ♀ greatest elong. | 46 | 50 W. |
| 16 | 15 | 16 | ☿ in Perihelion. | | |
| 17 | 6 | 0 | ♀ in Perihelion. | | |
| 18 | 11 | 41 | ☿ in Inf. ☌ ☉ | | |
| 19 | 4 | 45 | ♀ ☌ ♃ - - - ♀ | 1 | 58 N. |
| 19 | 23 | 24 | ♋ ☌ ι Virginis ✱ | 1 | 15 N. |
| 21 | 23 | 22 | ☉ enters ♑. Winter comm$^{t}$. | | |

### DECEMBER.

| d | h | m | | |
|---|---|---|---|---|
| 24 | 20 | 0 | ☿ ☌ ♀ - - - ☿ | 2 |
| 26 | 23 | 41 | ☿ greatest Hel. Lat. | |
| 27 | 0 | 0 | ♋ greatest Hel. Lat. | |
| 27 | 1 | 0 | ☿ ☌ ♆ - - - ☿ | 23 |
| 27 | 11 | 20 | ♂ ☌ ν Capricor. ✱ | 1 |
| 28 | 13 | 48 | ♃ ☌ α$^{2}$ Libræ ✱ | 0 |
| 30 | 12 | 5 | ♃ ☌ ☾ - - - ♃ | ( |
| 30 | 22 | 6 | ☉ in Perigee. | |
| 31 | 5 | 38 | ♀ ☌ γ Libræ ✱ | 1 |
| 31 | 9 | 47 | ♀ ☌ ☾ - - - ♀ | 8 |

## ELEMENTS FOR DETERMINING THE GEOCENTRIC POSITION, MAGNITUDE, AND APPEARANCE OF SATURN'S RING.

| Mean Noon. | | *p* | *a* | *b* | *l* | *l'* |
|---|---|---|---|---|---|---|
| | | ° ′ | ″ | ″ | ° ′ | ° ′ |
| Jan. | 1 | + 3 55 ·0 | 34 ·75 | + 15 ·12 | + 25 47 ·8 | + 25 47 ·9 |
| Feb. | 10 | 4 21 ·2 | 36 ·53 | 16 ·04 | 26 2 ·8 | 26 2 ·9 |
| Mar. | 22 | 4 30 ·0 | 39 ·01 | 17 ·13 | 26 2 ·5 | 26 2 ·5 |
| May | 1 | 4 19 ·6 | 41 ·12 | 17 ·95 | 25 52 ·8 | 25 52 ·9 |
| June | 10 | 3 57 ·9 | 41 ·53 | 17 ·98 | 25 39 ·0 | 25 38 ·9 |
| July | 20 | 3 41 ·0 | 39 ·97 | 17 ·22 | 25 31 ·3 | 25 31 ·2 |
| Aug. | 29 | 3 41 ·7 | 37 ·49 | 16 ·24 | 25 40 ·8 | 25 40 ·9 |
| Oct. | 8 | 4 1 ·4 | 35 ·32 | 15 ·53 | 26 5 ·2 | 26 5 ·2 |
| Nov. | 17 | 4 33 ·2 | 34 ·14 | 15 ·24 | 26 30 ·4 | 26 30 ·4 |
| Dec. | 27 | 5 7 ·3 | 34 ·21 | 15 ·38 | 26 43 ·6 | 26 43 ·6 |
| — | 31 | + 5 10 ·5 | 34 ·28 | + 15 ·42 | + 26 44 ·2 | + 26 44 ·1 |

*p* denotes the inclination of the Northern semi-minor axis of the Ring to the circle of Declination; + East, — West.

*a* the *major* axis of the Ring.

*b* the *minor* axis; + North surface visible,
— South surface visible.

*l* the elevation of the Earth above the plane of the Ring, as seen from Saturn; + North, — South.

*l'* the elevation of the Sun above the plane of the Ring, as seen from Saturn; + North, — South.

## TABLE,

SHOWING THE MEAN TIME OF THE GREATEST LIBRATION OF THE MOON
APPARENT DISC.

| | d | h | m | |
|---|---|---|---|---|
| Jan. | 13 | 5 | 1 | S. E. |
| | 27 | 12 | 25 | N. W. |
| Feb. | 10 | 0 | 28 | N. E. |
| | 22 | 19 | 19 | N. W. |
| Mar. | 10 | 4 | 32 | N. E. |
| | 22 | 10 | 4 | N. W. |
| Apr. | 7 | 10 | 37 | N. E. |
| | 19 | 13 | 50 | N. W. |
| May | 5 | 13 | 12 | N. E. |
| | 17 | 19 | 34 | N. W. |
| June | 2 | 3 | 40 | N. E. |
| | 14 | 22 | 3 | N. W. |
| | 28 | 17 | 11 | N. E. |
| July | 12 | 16 | 47 | N. W. |
| | 25 | 6 | 3 | N. E. |
| Aug. | 8 | 20 | 55 | N. W. |
| | 21 | 15 | 27 | N. E. |
| Sept. | 4 | 4 | 57 | N. W. |
| | 18 | 14 | 1 | N. E. |
| Oct. | 1 | 2 | 17 | N. W. |
| | 16 | 19 | 29 | N. E. |
| | 28 | 23 | 19 | N. W. |
| Nov. | 14 | 2 | 43 | N. E. |
| | 26 | 5 | 24 | N. W. |
| Dec. | 12 | 4 | 38 | N. E. |
| | 24 | 12 | 32 | N. W. |

The Moon's Libration is here supposed take place in the plane of her Orbit:—and the time of the greatest Libration of her A parent Disc is to be understood the instant which, to an observer at the centre of Earth, the variation of the Disc from its me state has attained its maximum.

The right-hand column indicates the qu drant of the Moon's Disc in which the L bration takes place, and in which the great change of the Moon's surface will beco visible.

## TABLE,

SHOWING THE ILLUMINATED PORTION OF THE DISCS OF VENUS AND MAR

| 1839. | VENUS. | MARS. |
|---|---|---|
| Jan. 15 | 0 ·994 | 0 ·924 |
| Feb. 14 | 0 ·973 | 0 ·972 |
| Mar. 15 | 0 ·936 | 0 ·999 |
| Apr. 15 | 0 ·876 | 0 ·953 |
| May 15 | 0 ·794 | 0 ·904 |
| June 15 | 0 ·685 | 0 ·883 |
| July 15 | 0 ·554 | 0 ·883 |
| Aug. 15 | 0 ·377 | 0 ·894 |
| Sept. 15 | 0 ·120 | 0 ·911 |
| Oct. 15 | 0 ·031 | 0 ·928 |
| Nov. 15 | 0 ·299 | 0 ·946 |
| 15 | 0 ·495 | 0 ·962 |

The numbers given in this Table represe the versed sines of the illuminated porti of the Discs, the apparent Diameters of t Planets being considered as *unity*.

## EPHEMERIS OF THE STARS PROPER TO BE OBSERVED WITH MARS, NEAR THE OPPOSITION OF THE PLANET,

MARCH 11, 1839.

| Date. | Star. | Magnitude. | *Apparent* Right Ascension. | *Apparent* Declination. |
|---|---|---|---|---|
| 1839. | | | h m s | ° ′ ″ |
| Feb. 9 | *b* Virginis - | 5.6 | 11 51 43 ·50 | N. 4 32 59 ·3 |
| | * - - - (*a*) | 8.9 | 12 13 14 ·62 | 3 37 12 ·9 |
| 10 | *b* Virginis - | 5.6 | 11 51 43 ·53 | 4 32 59 ·1 |
| | * - - - (*a*) | 8.9 | 12 13 14 ·64 | 3 37 12 ·8 |
| 11 | *b* Virginis - | 5.6 | 11 51 43 ·55 | 4 32 59 ·0 |
| | * - - - (*a*) | 8.9 | 12 13 14 ·66 | 3 37 12 ·7 |
| 12 | *b* Virginis - | 5.6 | 11 51 43 ·57 | 4 32 58 ·9 |
| 13 | *b* Virginis - | 5.6 | 11 51 43 ·59 | 4 32 58 ·8 |
| 14 | *b* Virginis - | 5.6 | 11 51 43 ·61 | 4 32 58 ·7 |
| | * - - - (*b*) | 8.9 | 12 0 29 ·33 | 4 0 5 ·2 |
| 15 | *b* Virginis - | 5.6 | 11 51 43 ·63 | 4 32 58 ·6 |
| | * - - - (*b*) | 8.9 | 12 0 29 ·35 | 4 0 5 ·1 |
| 16 | *b* Virginis - | 5.6 | 11 51 43 ·65 | 4 32 58 ·5 |
| | *c* Virginis - | 5.6 | 12 12 11 ·89 | 4 12 25 ·5 |
| 17 | *b* Virginis - | 5.6 | 11 51 43 ·67 | 4 32 58 ·4 |
| | *c* Virginis - | 5.6 | 12 12 11 ·91 | 4 12 25 ·6 |
| 18 | Virginis - | 7 | 11 50 0 ·30 | 4 23 33 ·1 |
| 19 | Virginis - | 7 | 11 50 0 ·32 | 4 23 33 ·0 |
| 20 | *b* Virginis - | 5.6 | 11 51 43 ·72 | 4 32 58 ·1 |
| 21 | *b* Virginis - | 5.6 | 11 51 43 ·74 | 4 32 58 ·0 |
| 22 | *ν* Virginis - | 4.5 | 11 37 36 ·87 | 7 25 44 ·7 |
| 23 | *ν* Virginis - | 4.5 | 11 37 36 ·88 | 7 25 44 ·6 |
| | * - - - (*c*) | 7.8 | 12 3 27 ·72 | 4 56 54 ·6 |
| 24 | *ν* Virginis - | 4.5 | 11 37 36 ·89 | 7 25 44 ·5 |
| | * - - - (*c*) | 7.8 | 12 3 27 ·74 | 4 56 54 ·5 |
| 25 | *ν* Virginis - | 4.5 | 11 37 36 ·91 | 7 25 44 ·4 |
| | * - - - (*d*) | 9 | 11 54 12 ·24 | N. 5 6 47 ·0 |

## EPHEMERIS OF THE STARS PROPER TO BE OBSERVED WITH MARS, NEAR THE OPPOSITION OF THE PLANET, MARCH 11, 1839.

| Date. | Star. | Magnitude. | *Apparent* Right Ascension. | *Apparent* Declination. |
|---|---|---|---|---|
| 1839. | | | h m s | ° ′ ″ |
| Feb. 26 | ν Virginis - | 4.5 | 11 37 36 ·92 | N. 7 25 44 ·4 |
| | * - - - (e) | 9 | 11 50 17 ·18 | 5 14 11 ·6 |
| 27 | ν Virginis - | 4.5 | 11 37 36 ·93 | 7 25 44 ·3 |
| | * - - - (f) | 7 | 11 59 20 ·48 | 5 24 31 ·7 |
| 28 | ν Virginis - | 4.5 | 11 37 36 ·95 | 7 25 44 ·3 |
| | * - - - (g) | 9 | 11 52 2 ·72 | 5 31 31 ·7 |
| Mar. 1 | ν Virginis - | 4.5 | 11 37 36 ·96 | 7 25 44 ·2 |
| | * - - - (h) | 8 | 11 45 50 ·67 | 5 46 15 ·0 |
| 2 | ν Virginis - | 4.5 | 11 37 36 ·98 | 7 25 44 ·2 |
| | * - - - (h) | 8 | 11 45 50 ·68 | 5 46 14 ·9 |
| 3 | ν Virginis - | 4.5 | 11 37 36 ·99 | 7 25 44 ·2 |
| | * - - - (i) | 9 | 11 45 55 ·97 | 5 53 14 ·8 |
| 4 | σ Leonis - - | 4 | 11 12 52 ·05 | 6 54 30 ·1 |
| | * - - - (k) | 7 | 11 40 53 ·94 | 6 4 56 ·5 |
| 5 | σ Leonis - - | 4 | 11 12 52 ·05 | 6 54 30 ·1 |
| | * - - - (l) | 9 | 11 48 34 ·77 | 6 14 21 ·0 |
| 6 | σ Leonis - - | 4 | 11 12 52 ·06 | 6 54 30 ·0 |
| | * - - - (m) | 9 | 11 37 26 ·84 | 6 23 13 ·1 |
| 7 | σ Leonis - - | 4 | 11 12 52 ·07 | 6 54 30 ·0 |
| | * - - - (n) | 9 | 11 43 55 ·95 | 6 31 4 ·8 |
| 8 | σ Leonis - - | 4 | 11 12 52 ·08 | 6 54 29 ·9 |
| | * - - - (o) | 9 | 11 47 15 ·03 | 6 42 44 ·3 |
| 9 | σ Leonis - - | 4 | 11 12 52 ·08 | 6 54 29 ·9 |
| | * - - - (p) | 9 | 11 39 23 ·14 | 6 46 51 ·3 |
| 10 | σ Leonis - - | 4 | 11 12 52 ·09 | 6 54 29 ·9 |
| | * - - - (q) | 7 | 11 28 19 ·75 | 6 59 55 ·1 |
| 11 | σ Leonis - - | 4 | 11 12 52 ·10 | 6 54 29 ·8 |
| | * - - - (r) | 7 | 11 29 2 ·38 | 7 9 25 ·5 |
| 12 | σ Leonis - - | 4 | 11 12 52 ·11 | 6 54 29 ·8 |
| | * - - - (r) | 7 | 11 29 2 ·39 | N. 7 9 25 ·5 |

EPHEMERIS OF THE STARS PROPER TO BE OBSERVED WITH MARS, NEAR THE OPPOSITION OF THE PLANET, MARCH 11, 1839.

| Date. | Star. | Magnitude. | *Apparent* Right Ascension. | *Apparent* Declination. |
|---|---|---|---|---|
| 1839. | | | h m s | ° ′ ″ |
| Mar. 13 | σ Leonis - - | 4 | 11 12 52 ·11 | N. 6 54 29 ·8 |
| | ν Virginis - | 4.5 | 11 37 37 ·08 | 7 25 43 ·9 |
| 14 | σ Leonis - - | 4 | 11 12 52 ·12 | 6 54 29 ·8 |
| | ν Virginis - | 4.5 | 11 37 37 ·09 | 7 25 43 ·9 |
| 15 | σ Leonis - - | 4 | 11 12 52 ·12 | 6 54 29 ·8 |
| | * - - - (*s*) | 8 | 11 27 40 ·94 | 7 39 21 ·8 |
| 16 | σ Leonis - - | 4 | 11 12 52 ·13 | 6 54 29 ·8 |
| | * - - - (*t*) | 9 | 11 22 11 ·33 | 7 43 33 ·6 |
| 17 | σ Leonis - - | 4 | 11 12 52 ·13 | 6 54 29 ·8 |
| | * - - - (*u*) | 9 | 11 20 4 ·71 | 7 55 31 ·2 |
| 18 | σ Leonis - - | 4 | 11 12 52 ·13 | 6 54 29 ·8 |
| | * - - - (*w*) | 9 | 11 21 28 ·18 | 8 5 25 ·7 |
| 19 | σ Leonis - - | 4 | 11 12 52 ·14 | 6 54 29 ·8 |
| | * - - - (*w*) | 9 | 11 21 28 ·19 | 8 5 25 ·6 |
| 20 | σ Leonis - - | 4 | 11 12 52 ·14 | 6 54 29 ·8 |
| | * - - - (*x*) | 8.9 | 11 24 51 ·70 | 8 17 52 ·5 |
| 21 | σ Leonis - - | 4 | 11 12 52 ·14 | 6 54 29 ·8 |
| | * - - - (*y*) | 7 | 11 21 12 ·97 | 8 29 1 ·7 |
| 22 | χ Leonis - - | 4.5 | 10 56 44 ·58 | 8 12 10 ·0 |
| | * - - - (*y*) | 7 | 11 21 12 ·97 | 8 29 1 ·7 |
| 23 | χ Leonis - - | 4.5 | 10 56 44 ·58 | 8 12 10 ·0 |
| 24 | χ Leonis - - | 4.5 | 10 56 44 ·58 | 8 12 10 ·0 |
| | * - - - (*z*) | 8 | 11 23 23 ·75 | 8 44 58 ·8 |
| 25 | χ Leonis - - | 4.5 | 10 56 44 ·58 | 8 12 10 ·0 |
| | * - - - (A) | 8 | 11 17 6 ·74 | 8 50 17 ·4 |
| 26 | χ Leonis - - | 4.5 | 10 56 44 ·57 | 8 12 10 ·1 |
| | Leonis - - | 6.7 | 11 5 41 ·43 | 8 56 21 ·2 |
| 27 | χ Leonis - - | 4.5 | 10 56 44 ·57 | 8 12 10 ·1 |
| | Leonis - - | 6.7 | 11 5 41 ·43 | N. 8 56 21 ·2 |

## EPHEMERIS OF THE STARS PROPER TO BE OBSERVED WITH MARS, NEAR THE OPPOSITION OF THE PLANET,

MARCH 11, 1839.

| Date. | Star. | Magnitude. | *Apparent* Right Ascension. | *Apparent* Declination. |
|---|---|---|---|---|
| 1839. | | | h m s | ° ′ ″ |
| Mar. 28 | χ Leonis - - | 4.5 | 10 56 44 ·57 | N. 8 12 10 ·1 |
| | * - - - (B) | 9 | 11 3 2 ·39 | 9 8 23 ·9 |
| 29 | χ Leonis - - | 4.5 | 10 56 44 ·57 | 8 12 10 ·1 |
| | * - - - (C) | 9 | 11 3 18 ·71 | 9 11 11 ·4 |
| 30 | χ Leonis - - | 4.5 | 10 56 44 ·57 | 8 12 10 ·1 |
| | * - - - (C) | 9 | 11 3 18 ·71 | 9 11 11 ·4 |
| 31 | χ Leonis - - | 4.5 | 10 56 44 ·56 | 8 12 10 ·2 |
| April 1 | χ Leonis - - | 4.5 | 10 56 44 ·56 | 8 12 10 ·2 |
| 2 | χ Leonis - - | 4.5 | 10 56 44 ·56 | 8 12 10 ·2 |
| 3 | * - - - (D) | 9 | 10 55 22 ·46 | 9 35 33 ·4 |
| | ι Leonis - - | 4 | 11 15 33 ·75 | 11 24 47 ·9 |
| 4 | * - - - (D) | 9 | 10 55 22 ·46 | 9 35 33 ·4 |
| | ι Leonis - - | 4 | 11 15 33 ·75 | 11 24 47 ·9 |
| 5 | * - - - (D) | 9 | 10 55 22 ·45 | 9 35 33 ·5 |
| | ι Leonis - - | 4 | 11 15 33 ·75 | 11 24 48 ·0 |
| 6 | * - - - (E) | 8 | 10 53 53 ·87 | 9 43 59 ·6 |
| | ι Leonis - - | 4 | 11 15 33 ·74 | 11 24 48 ·1 |
| 7 | * - - - (E) | 8 | 10 53 53 ·87 | 9 43 59 ·6 |
| | ι Leonis - - | 4 | 11 15 33 ·74 | 11 24 48 ·1 |
| 8 | * - - - (E) | 8 | 10 53 53 ·86 | 9 43 59 ·7 |
| | ι Leonis - - | 4 | 11 15 33 ·74 | 11 24 48 ·2 |
| 9 | * - - - (E) | 8 | 10 53 53 ·86 | 9 43 59 ·7 |
| | ι Leonis - - | 4 | 11 15 33 ·73 | 11 24 48 ·2 |
| 10 | * - - - (E) | 8 | 10 53 53 ·85 | 9 43 59 ·8 |
| | ι Leonis - - | 4 | 11 15 33 ·73 | 11 24 48 ·3 |
| 11 | * - - - (E) | 8 | 10 53 53 ·84 | 9 43 59 ·8 |
| | ι Leonis - - | 4 | 11 15 33 ·72 | 11 24 48 ·3 |
| 12 | * - - - (E) | 8 | 10 53 53 ·83 | 9 43 59 ·9 |
| | ι Leonis - - | 4 | 11 15 33 ·72 | N. 11 24 48 ·4 |

EPHEMERIS OF THE STARS PROPER TO BE OBSERVED WITH MARS, NEAR THE OPPOSITION OF THE PLANET, MARCH 11, 1839.

| Date. | Star. | Magnitude. | *Apparent* Right Ascension. | *Apparent* Declination. |
|---|---|---|---|---|
| 1839. | | | h m s | ° ′ ″ |
| April 13 | * - - - (E) | 8 | 10 53 53 ·83 | N. 9 43 59 ·9 |
| | ι Leonis - - | 4 | 11 15 33 ·71 | 11 24 48 ·5 |
| 14 | * - - - (E) | 8 | 10 53 53 ·82 | 9 44 0 ·0 |
| | ι Leonis - - | 4 | 11 15 33 ·71 | 11 24 48 ·5 |
| 15 | * - - - (E) | 8 | 10 53 53 ·82 | 9 44 0 ·0 |
| | ι Leonis - - | 4 | 11 15 33 ·70 | 11 24 48 ·6 |
| 16 | * - - - (E) | 8 | 10 53 53 ·81 | 9 44 0 ·1 |
| | ι Leonis - - | 4 | 11 15 33 ·70 | 11 24 48 ·7 |
| 17 | * - - - (E) | 8 | 10 53 53 ·80 | 9 44 0 ·1 |
| | ι Leonis - - | 4 | 11 15 33 ·69 | 11 24 48 ·7 |
| 18 | * - - - (E) | 8 | 10 53 53 ·79 | 9 44 0 ·2 |
| | ι Leonis - - | 4 | 11 15 33 ·68 | 11 24 48 ·8 |
| 19 | * - - - (E) | 8 | 10 53 53 ·79 | 9 44 0 ·2 |
| | ι Leonis - - | 4 | 11 15 33 ·68 | 11 24 48 ·8 |
| 20 | * - - - (E) | 8 | 10 53 53 ·78 | 9 44 0 ·3 |
| | ι Leonis - - | 4 | 11 15 33 ·67 | 11 24 48 ·9 |
| 21 | * - - - (E) | 8 | 10 53 53 ·77 | 9 44 0 ·3 |
| | ι Leonis - - | 4 | 11 15 33 ·67 | 11 24 48 ·9 |
| 22 | * - - - (D) | 9 | 10 55 22 ·34 | 9 35 34 ·3 |
| | ι Leonis - - | 4 | 11 15 33 ·66 | 11 24 49 ·0 |
| 23 | * - - - (D) | 9 | 10 55 22 ·33 | 9 35 34 ·3 |
| | ι Leonis - - | 4 | 11 15 33 ·65 | 11 24 49 ·1 |
| 24 | * - - - (D) | 9 | 10 55 22 ·32 | 9 35 34 ·4 |
| | ι Leonis - - | 4 | 11 15 33 ·65 | 11 24 49 ·1 |
| 25 | ι Leonis - - | 4 | 11 15 33 ·64 | N. 11 24 49 ·2 |

## EPHEMERIS OF GAMBART'S COMET,

about the Time of the Perihelion Passage in the Year 1839.

| At Greenwich Mean Midnight. | | | | | |
|---|---|---|---|---|---|
| Date. | *Apparent* Right Ascension. | *Apparent* Declination. | Logarithm of the Distance from the | | Meridian Passage. |
| | | | Earth. | Sun. | |
| 1839. | h m s | ° ′ | | | h m |
| Apr. 29 | 1 38 36 | N. 16 31 ·0 | 0 ·3959 | 0 ·1803 | 23 9 ·2 |
| May 3 | 1 50 37 | 17 20 ·3 | 0 ·3879 | 0 ·1682 | 23 5 ·5 |
| 7 | 2 3 8 | 18 8 ·6 | 0 ·3798 | 0 ·1558 | 23 2 ·3 |
| 11 | 2 16 11 | 18 55 ·5 | 0 ·3717 | 0 ·1430 | 22 59 ·7 |
| 15 | 2 29 47 | 19 40 ·8 | 0 ·3635 | 0 ·1300 | 22 57 ·5 |
| 19 | 2 43 59 | 20 23 ·7 | 0 ·3553 | 0 ·1167 | 22 56 ·1 |
| 23 | 2 58 47 | 21 3 ·6 | 0 ·3472 | 0 ·1031 | 22 55 ·2 |
| 27 | 3 14 11 | 21 39 ·9 | 0 ·3392 | 0 ·0893 | 22 54 ·9 |
| 31 | 3 30 15 | 22 11 ·8 | 0 ·3314 | 0 ·0753 | 22 55 ·2 |
| June 4 | 3 46 58 | 22 38 ·6 | 0 ·3238 | 0 ·0613 | 22 56 ·3 |
| 8 | 4 4 19 | 22 59 ·5 | 0 ·3165 | 0 ·0472 | 22 57 ·9 |
| 12 | 4 22 18 | 23 13 ·6 | 0 ·3096 | 0 ·0333 | 23 0 ·2 |
| 16 | 4 40 52 | 23 20 ·2 | 0 ·3031 | 0 ·0196 | 23 3 ·1 |
| 20 | 4 59 59 | 23 18 ·3 | 0 ·2971 | 0 ·0064 | 23 6 ·4 |
| 24 | 5 19 34 | 23 7 ·3 | 0 ·2916 | 9 ·9937 | 23 10 ·3 |
| 28 | 5 39 33 | 22 46 ·7 | 0 ·2869 | 9 ·9820 | 23 14 ·5 |
| July 2 | 5 59 51 | 22 16 ·3 | 0 ·2828 | 9 ·9713 | 23 19 ·1 |
| 6 | 6 20 20 | 21 35 ·7 | 0 ·2795 | 9 ·9621 | 23 23 ·8 |
| 10 | 6 40 56 | 20 45 ·0 | 0 ·2770 | 9 ·9545 | 23 28 ·6 |
| 14 | 7 1 31 | 19 44 ·8 | 0 ·2752 | 9 ·9487 | 23 33 ·4 |
| 18 | 7 21 59 | 18 35 ·6 | 0 ·2743 | 9 ·9451 | 23 38 ·1 |
| 22 | 7 42 15 | 17 18 ·1 | 0 ·2742 | 9 ·9437 | 23 42 ·6 |
| 26 | 8 2 13 | 15 53 ·7 | 0 ·2750 | 9 ·9445 | 23 46 ·8 |
| 30 | 8 21 48 | 14 23 ·0 | 0 ·2766 | 9 ·9476 | 23 50 ·5 |
| Aug. 3 | 8 40 58 | 12 47 ·9 | 0 ·2790 | 9 ·9528 | 23 53 ·9 |
| 7 | 8 59 39 | 11 9 ·0 | 0 ·2822 | 9 ·9600 | 23 56 ·7 |
| 11 | 9 17 51 | 9 27 ·9 | 0 ·2861 | 9 ·9689 | 23 59 ·1 |
| 15 | 9 35 31 | 7 45 ·5 | 0 ·2906 | 9 ·9792 | 0 0 ·5 |
| 19 | 9 52 40 | 6 3 ·0 | 0 ·2958 | 9 ·9907 | 0 2 ·0 |
| 23 | 10 9 16 | 4 21 ·2 | 0 ·3015 | 0 ·0031 | 0 2 ·9 |
| 27 | 10 25 21 | N. 2 40 ·9 | 0 ·3077 | 0 ·0162 | 0 3 ·3 |

## EPHEMERIS OF GAMBART'S COMET,

about the Time of the Perihelion Passage in the Year 1839.

| At Greenwich Mean Midnight. | | | | |
|---|---|---|---|---|
| Date. | *Apparent* Right Ascension. | *Apparent* Declination. | Logarithm of the Distance from the Earth. | Logarithm of the Distance from the Sun. | Meridian Passage. |
| 1839. | h m s | ° ′ | | | h m |
| Aug. 27 | 10 25 21 | 2 40 ·9 | 0 ·3077 | 0 ·0162 | 0 3 ·3 |
| 31 | 10 40 56 | N. 1 2 ·7 | 0 ·3144 | 0 ·0298 | 0 3 ·2 |
| Sept. 4 | 10 56 1 | S. 0 33 ·0 | 0 ·3214 | 0 ·0437 | 0 2 ·5 |
| 8 | 11 10 37 | S. 2 5 ·6 | 0 ·3286 | 0 ·0577 | 0 1 ·4 |
| 12 | 11 24 45 | 3 35 ·1 | 0 ·3361 | 0 ·0718 | 23 59 ·3 |
| 16 | 11 38 28 | 5 1 ·1 | 0 ·3437 | 0 ·0858 | 23 57 ·2 |
| 20 | 11 51 45 | 6 23 ·4 | 0 ·3514 | 0 ·0996 | 23 54 ·7 |
| 24 | 12 4 39 | 7 42 ·3 | 0 ·3591 | 0 ·1132 | 23 51 ·8 |
| 28 | 12 17 10 | 8 57 ·3 | 0 ·3668 | 0 ·1266 | 23 48 ·5 |
| Oct. 2 | 12 29 20 | 10 8 ·8 | 0 ·3744 | 0 ·1397 | 23 44 ·8 |
| 6 | 12 41 11 | 11 16 ·7 | 0 ·3819 | 0 ·1526 | 23 40 ·9 |
| 10 | 12 52 42 | 12 21 ·1 | 0 ·3892 | 0 ·1651 | 23 36 ·6 |
| 14 | 13 3 56 | 13 22 ·1 | 0 ·3964 | 0 ·1773 | 23 32 ·0 |
| 18 | 13 14 51 | 14 19 ·8 | 0 ·4033 | 0 ·1891 | 23 27 ·1 |
| 22 | 13 25 30 | 15 14 ·3 | 0 ·4100 | 0 ·2007 | 23 22 ·0 |
| 26 | 13 35 53 | 16 5 ·6 | 0 ·4164 | 0 ·2119 | 23 16 ·6 |
| 30 | 13 46 1 | 16 54 ·0 | 0 ·4226 | 0 ·2229 | 23 10 ·9 |
| Nov. 3 | 13 55 56 | S. 17 39 ·6 | 0 ·4284 | 0 ·2335 | 23 5 ·0 |

## MEAN TIME OF HIGH WATER AT LONDON BRIDGE,

Reckoning from Noon of each Day.

| Day of the Month. | JANUARY. | | FEBRUARY. | | MARCH. | | APRIL. | | MAY. | | JUNE. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | h m | h m | h m | h m | h m | h m | h m | h m | h m | h m | h m | h m |
| 1 | 3 4 | 15 26 | 4 4 | 16 21 | 3 9 | 15 21 | 3 34 | 15 45 | 3 33 | 15 51 | 4 33 | 16 51 |
| 2 | 3 44 | 16 4 | 4 34 | 16 51 | 3 37 | 15 51 | 4 0 | 16 14 | 4 10 | 16 28 | 5 14 | 17 37 |
| 3 | 4 25 | 16 43 | 5 4 | 17 19 | 4 5 | 16 17 | 4 31 | 16 45 | 4 44 | 17 3 | 6 6 | 18 2[illegible] |
| 4 | 5 2 | 17 21 | 5 35 | 17 48 | 4 34 | 16 47 | 5 1 | 17 20 | 5 25 | 17 47 | 7 0 | 19 2[illegible] |
| 5 | 5 40 | 17 58 | 6 3 | 18 20 | 4 58 | 17 11 | 5 40 | 18 1 | 6 12 | 18 37 | 7 59 | 20 31 |
| 6 | 6 17 | 18 35 | 6 38 | 18 57 | 5 27 | 17 43 | 6 24 | 18 49 | 7 8 | 19 43 | 9 3 | 21 38 |
| 7 | 6 56 | 19 15 | 7 21 | 19 45 | 6 2 | 18 25 | 7 20 | 20 1 | 8 24 | 21 6 | 10 11 | 22 42 |
| 8 | 7 34 | 19 53 | 8 15 | 20 54 | 6 45 | 19 9 | 8 43 | 21 27 | 9 47 | 22 21 | 11 11 | 23 42 |
| 9 | 8 18 | 20 47 | 9 37 | 22 24 | 7 41 | 20 20 | 10 12 | 22 54 | 10 56 | 23 24 | — | 12 11 |
| 10 | 9 20 | 21 59 | 11 8 | 23 49 | 9 3 | 21 52 | 11 31 | — | 11 51 | — | 0 40 | 13 10 |
| 11 | 10 38 | 23 15 | — | 12 22 | 10 42 | 23 19 | 0 0 | 12 25 | 0 14 | 12 39 | 1 38 | 14 6 |
| 12 | 11 50 | — | 0 51 | 13 18 | 11 55 | — | 0 52 | 13 13 | 1 2 | 13 27 | 2 33 | 14 58 |
| 13 | 0 21 | 12 49 | 1 41 | 14 6 | 0 26 | 12 56 | 1 35 | 13 57 | 1 51 | 14 15 | 3 20 | 15 44 |
| 14 | 1 16 | 13 38 | 2 28 | 14 49 | 1 19 | 13 42 | 2 17 | 14 37 | 2 40 | 15 5 | 4 4 | 16 26 |
| 15 | 2 1 | 14 23 | 3 11 | 15 31 | 2 5 | 14 27 | 2 58 | 15 19 | 3 27 | 15 54 | 4 47 | 17 10 |
| 16 | 2 44 | 15 5 | 3 48 | 16 9 | 2 45 | 15 5 | 3 41 | 16 8 | 4 17 | 16 39 | 5 35 | 17 58 |
| 17 | 3 27 | 15 47 | 4 29 | 16 46 | 3 25 | 15 45 | 4 29 | 16 49 | 5 2 | 17 24 | 6 19 | 18 43 |
| 18 | 4 10 | 16 30 | 5 4 | 17 23 | 4 6 | 16 26 | 5 11 | 17 37 | 5 48 | 18 14 | 7 7 | 19 28 |
| 19 | 4 52 | 17 14 | 5 42 | 18 3 | 4 46 | 17 6 | 6 2 | 18 27 | 6 39 | 19 9 | 7 53 | 20 19 |
| 20 | 5 35 | 17 54 | 6 31 | 18 58 | 5 27 | 17 51 | 6 57 | 19 30 | 7 40 | 20 12 | 8 45 | 21 13 |
| 21 | 6 17 | 18 39 | 7 23 | 19 55 | 6 15 | 18 40 | 8 6 | 20 51 | 8 50 | 21 25 | 9 43 | 22 12 |
| 22 | 7 0 | 19 19 | 8 35 | 21 20 | 7 6 | 19 41 | 9 35 | 22 17 | 9 59 | 22 30 | 10 43 | 23 16 |
| 23 | 7 45 | 20 19 | 10 10 | 22 59 | 8 27 | 21 15 | 10 55 | 23 29 | 11 1 | 23 32 | 11 47 | — |
| 24 | 8 56 | 21 42 | 11 44 | — | 10 4 | 22 49 | 11 58 | — | 11 55 | — | 0 14 | 12 39 |
| 25 | 10 26 | 23 12 | 0 22 | 12 51 | 11 30 | — | 0 23 | 12 45 | 0 15 | 12 34 | 1 2 | 13 24 |
| 26 | 11 54 | — | 1 18 | 13 42 | 0 6 | 12 37 | 1 0 | 13 18 | 0 52 | 13 10 | 1 45 | 14 5 |
| 27 | 0 30 | 13 1 | 2 3 | 14 20 | 1 0 | 13 18 | 1 35 | 13 50 | 1 28 | 13 48 | 2 25 | 14 45 |
| 28 | 1 28 | 13 53 | 2 38 | 14 53 | 1 37 | 13 56 | 2 4 | 14 20 | 2 6 | 14 23 | 3 4 | 15 23 |
| 29 | 2 13 | 14 33 | - - | - - | 2 12 | 14 25 | 2 33 | 14 46 | 2 40 | 14 59 | 3 43 | 16 4 |
| 30 | 2 53 | 15 13 | - - | - - | 2 41 | 14 54 | 3 2 | 15 18 | 3 15 | 15 34 | 4 26 | 16 46 |
| 31 | 3 31 | 15 48 | - - | - - | 3 7 | 15 18 | - - | - - | 3 53 | 16 14 | - - | - - |

If the time of High Water be required, according to the *civil* mode of reckoning:

1. *For the Morning Tide:*—With the day of the month *preceding* the given date, take the time opposite thereto from the 2nd column of the month, and diminish it by 12 hours.

2. *For the Afternoon Tide:*—With the given date, take the time opposite thereto from the 1st column of the month.

## MEAN TIME OF HIGH WATER AT LONDON BRIDGE,

Reckoning from Noon of each Day.

| Day of the Month. | JULY. | | AUGUST. | | SEPTEMBER. | | OCTOBER. | | NOVEMBER. | | DECEMBER | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | h m | h m | h m | h m | h m | h m | h m | h m | h m | h m | h m | h m |
| 1 | 5 7 | 17 28 | 6 8 | 18 28 | 7 31 | 20 10 | 8 48 | 21 35 | 11 6 | 23 39 | 11 4 | 23 30 |
| 2 | 5 51 | 18 14 | 6 50 | 19 14 | 8 55 | 21 45 | 10 19 | 23 6 | — | 12 4 | 11 52 | — |
| 3 | 6 39 | 19 2 | 7 43 | 20 19 | 10 38 | 23 20 | 11 44 | — | 0 26 | 12 43 | 0 14 | 12 37 |
| 4 | 7 25 | 19 48 | 8 58 | 21 46 | 11 58 | — | 0 16 | 12 38 | 1 3 | 13 17 | 0 56 | 13 19 |
| 5 | 8 14 | 20 47 | 10 34 | 23 20 | 0 29 | 12 58 | 1 1 | 13 23 | 1 33 | 13 48 | 1 36 | 13 53 |
| 6 | 9 23 | 22 3 | 11 59 | — | 1 23 | 13 46 | 1 43 | 13 57 | 2 4 | 14 18 | 2 12 | 14 29 |
| 7 | 10 44 | 23 24 | 0 35 | 13 6 | 2 5 | 14 23 | 2 12 | 14 26 | 2 33 | 14 48 | 2 49 | 15 5 |
| 8 | 11 59 | — | 1 32 | 13 56 | 2 42 | 14 55 | 2 39 | 14 50 | 3 4 | 15 18 | 3 22 | 15 40 |
| 9 | 0 36 | 13 9 | 2 19 | 14 40 | 3 11 | 15 24 | 3 3 | 15 17 | 3 35 | 15 53 | 3 58 | 16 16 |
| 10 | 1 37 | 14 3 | 3 0 | 15 18 | 3 37 | 15 48 | 3 28 | 15 43 | 4 12 | 16 28 | 4 35 | 16 57 |
| 11 | 2 29 | 14 50 | 3 36 | 15 51 | 4 2 | 16 15 | 3 57 | 16 14 | 4 47 | 17 7 | 5 16 | 17 40 |
| 12 | 3 12 | 15 34 | 4 6 | 16 22 | 4 28 | 16 41 | 4 30 | 16 47 | 5 29 | 17 52 | 6 3 | 18 29 |
| 13 | 3 53 | 16 14 | 4 39 | 16 53 | 4 57 | 17 12 | 5 3 | 17 24 | 6 17 | 18 45 | 6 56 | 19 23 |
| 14 | 4 31 | 16 51 | 5 7 | 17 21 | 5 31 | 17 50 | 5 46 | 18 7 | 7 18 | 19 51 | 7 49 | 20 16 |
| 15 | 5 9 | 17 28 | 5 35 | 17 50 | 6 11 | 18 31 | 6 31 | 19 1 | 8 30 | 21 6 | 8 51 | 21 23 |
| 16 | 5 45 | 18 2 | 6 6 | 18 27 | 6 57 | 19 28 | 7 34 | 20 18 | 9 43 | 22 17 | 9 54 | 22 29 |
| 17 | 6 20 | 18 38 | 6 48 | 19 9 | 8 7 | 20 53 | 9 2 | 21 46 | 10 46 | 23 18 | 11 4 | 23 39 |
| 18 | 6 58 | 19 13 | 7 34 | 20 6 | 9 38 | 22 25 | 10 31 | 23 5 | 11 45 | — | — | 12 9 |
| 19 | 7 34 | 19 56 | 8 46 | 21 27 | 11 2 | 23 37 | 11 35 | — | 0 7 | 12 33 | 0 41 | 13 12 |
| 20 | 8 25 | 20 59 | 10 15 | 22 59 | — | 12 10 | 0 5 | 12 28 | 0 59 | 13 24 | 1 38 | 14 6 |
| 21 | 9 33 | 22 13 | 11 38 | — | 0 38 | 13 1 | 0 48 | 13 11 | 1 51 | 14 15 | 2 34 | 14 58 |
| 22 | 10 53 | 23 31 | 0 11 | 12 39 | 1 24 | 13 48 | 1 32 | 13 54 | 2 39 | 15 4 | 3 23 | 15 46 |
| 23 | — | 12 4 | 1 4 | 13 28 | 2 7 | 14 24 | 2 15 | 14 34 | 3 29 | 15 56 | 4 7 | 16 31 |
| 24 | 0 34 | 13 1 | 1 51 | 14 12 | 2 40 | 15 0 | 2 55 | 15 16 | 4 18 | 16 43 | 4 54 | 17 17 |
| 25 | 1 27 | 13 49 | 2 34 | 14 54 | 3 20 | 15 37 | 3 38 | 16 4 | 5 6 | 17 29 | 5 37 | 17 58 |
| 26 | 2 11 | 14 33 | 3 13 | 15 30 | 3 54 | 16 15 | 4 25 | 16 50 | 5 57 | 18 25 | 6 21 | 18 44 |
| 27 | 2 52 | 15 11 | 3 47 | 16 5 | 4 38 | 17 2 | 5 14 | 17 40 | 6 52 | 19 21 | 7 2 | 19 25 |
| 28 | 3 31 | 15 50 | 4 24 | 16 42 | 5 26 | 17 50 | 6 6 | 18 35 | 7 51 | 20 23 | 7 47 | 20 11 |
| 29 | 4 10 | 16 29 | 4 58 | 17 19 | 6 16 | 18 45 | 7 6 | 19 42 | 8 56 | 21 29 | 8 38 | 21 9 |
| 30 | 4 50 | 17 8 | 5 39 | 18 4 | 7 17 | 20 2 | 8 27 | 21 8 | 10 1 | 22 34 | 9 41 | 22 18 |
| 31 | 5 28 | 17 47 | 6 30 | 18 56 | - - | - - | 9 52 | 22 29 | - - | - - | 10 55 | 23 30 |

*Example:*—Required the Mean Time of High Water, at London Bridge, for the Morning and Afternoon of Jan. 23, 1839.

1. Opposite the day *preceding*, viz. 22, and in the 2nd column, under JANUARY, is $19^h\ 19^m$, which, being diminished by $12^h$, gives $7^h\ 19^m$ for the Time of High Water in the Morning.

2. Opposite the given date, and in the 1st column, under JANUARY, is $7^h\ 45^m$, which is the Time of High Water in the Afternoon.

## TIME OF HIGH WATER, ON THE FULL AND CHANGE OF THE MOON, AT THE UNDERMENTIONED PORTS AND PLACES.

| Place. | Situation. | Time of High Water. h | m |
|---|---|---|---|
| Aberdeen Bar | Scotland | 1 | 12 |
| Aberdovy | Wales | 7 | 30 |
| Aberystwith | Wales | 7 | 30 |
| Achill Head | Ireland | 6 | 0 |
| Agnes (St.) | Scilly Isles | 4 | 10 |
| Air Point | Isle of Man | 10 | 30 |
| Aldborough | England | 10 | 45 |
| Alderney Pier | English Channel | 6 | 45 |
| Alne River | England | 2 | 45 |
| Amlwick Port | Anglesea | 10 | 30 |
| Antwerp | Netherlands | 4 | 25 |
| Arran Isle | Scotland | 11 | 15 |
| Arundel Bar | England | 11 | 15 |
| Balta | Shetland | 3 | 0 |
| Baltimore | Ireland | 3 | 45 |
| Banff | Scotland | 11 | 30 |
| Bantry Bay | Ireland | 3 | 46 |
| Barmouth | Wales | 7 | 55 |
| Barnstaple Bar | England | 5 | 30 |
| Beachy (on Shore) | England | 10 | 15 |
| Beachy (Offing) | England | 11 | 0 |
| Beaumaris | Wales | 10 | 15 |
| Belfast | Ireland | 10 | 5 |
| Berwick | England | 2 | 18 |
| Blakeney Harbour | England | 6 | 50 |
| Blythe | England | 2 | 45 |
| Bolt Head | England | 5 | 55 |
| Boston | England | 7 | 15 |
| Boulogne | France | 10 | 50 |
| Brassa Sound | Shetland | 10 | 0 |
| Bree Bank | North Sea | 3 | 30 |
| Brest Harbour | France | 3 | 48 |
| Bridgewater | England | 6 | 45 |
| Bridlington | England | 4 | 30 |
| Bridport | England | 6 | 0 |
| Brighton | England | 10 | 5 |
| Brielle | Netherlands | 3 | 0 |
| Bristol | England | 7 | 16 |
| Brouwershaven | Netherlands | 2 | 0 |
| Buchan Ness | Scotland | 12 | 0 |
| Burnt Island | Scotland | 2 | 30 |
| Cairston | Orkneys | 9 | 0 |
| Calais | France | 11 | 30 |
| Caldy Island | W. C. of England | 6 | 0 |
| Calf of Man | St. Geo. Channel | 10 | 30 |
| Cancale Bay | France | 6 | 0 |
| Cantire (Mull) | Scotland | 9 | 0 |
| Cardigan Bar | Wales | 7 | 0 |
| Caermarthen Bar | Wales | 6 | 10 |
| Carnarvon Bar | Wales | 9 | 0 |
| Chatham | England | [illegible] | [illegible] |
| Cherbourg | France | [illegible] | [illegible] |
| Chester Bar | England | 10 | [illegible] |
| Chichester Harbour | England | 11 | [illegible] |
| Christchurch Harbour | England | 8 | [illegible] |
| Clear Cape | Ireland | [illegible] | [illegible] |
| Cork Harbour | Ireland | [illegible] | [illegible] |
| Cornwall Cape | England | [illegible] | [illegible] |
| Cowes | Isle of Wight | 10 | [illegible] |
| Cromartie | Scotland | 11 | [illegible] |
| Cuckold's Point | River Thames | 1 | [illegible] |
| Cuxhaven | Germany | 1 | [illegible] |
| Dartmouth Harbour | England | 6 | [illegible] |
| Deal | England | 11 | [illegible] |
| Dingle Bay | Ireland | 3 | [illegible] |
| Donaghadee Pier | Ireland | 9 | [illegible] |
| Donegal Bar | Ireland | 3 | [illegible] |
| Douglas's Harbour | Isle of Man | 10 | [illegible] |
| Dover Pier | England | 11 | [illegible] |
| Downing's Bay / Sheephaven | Ireland | [illegible] | [illegible] |
| Downs | England | 11 | [illegible] |
| Dublin Bar | Ireland | 10 | [illegible] |
| Dudgeon Lights | North Sea | 7 | [illegible] |
| Dunbar | Scotland | 2 | [illegible] |
| Duncansby Head | Scotland | 10 | [illegible] |
| Dundalk Bay | Ireland | 10 | [illegible] |
| Dundee | Scotland | 2 | [illegible] |
| Dungarvon | Ireland | 4 | [illegible] |
| Dungeness | England | 10 | [illegible] |
| Dunkirk | France | 11 | [illegible] |
| Eddystone | English Chan. | 5 | [illegible] |
| Exmouth Bar | England | 6 | [illegible] |
| Eyemouth | Scotland | 2 | [illegible] |
| Falmouth | England | 5 | [illegible] |
| Flamboro' Head | England | 4 | [illegible] |
| Flatholm | England | 6 | [illegible] |
| Flats (Kentish) | England | 11 | [illegible] |
| Flushing | Netherlands | 1 | [illegible] |
| Foreland (North) | England | 11 | [illegible] |
| Foreland (South) | England | 11 | [illegible] |
| Fowey | England | 3 | [illegible] |
| Galloper | River Thames | 0 | [illegible] |
| Galloway (Mull) | Scotland | 11 | [illegible] |
| Galway Bay | Ireland | 4 | [illegible] |
| Goeree (West Gat.) | Holland | 1 | [illegible] |
| Goodwyn (Back of) | Downs | 1 | [illegible] |
| Gravelines | France | 11 | [illegible] |
| Gravesend | England | 1 | [illegible] |

## TIME OF HIGH WATER, ON THE FULL AND CHANGE OF THE MOON, AT THE UNDERMENTIONED PORTS AND PLACES.

| Place. | Situation. | Time of High Water. h | m |
|---|---|---|---|
| Greenock - - | W. C. of Scotland | 11 | 45 |
| Guernsey Pier - | English Channel | 6 | 30 |
| Gunfleet - - | River Thames - | 12 | 0 |
| Hartlepool - - | England - - | 3 | 45 |
| Harwich - - | England - - | 11 | 30 |
| Hastings - - | England - - | 10 | 36 |
| Havre de Grace | France - - - | 10 | 30 |
| Helen's (St.) - | England - - | 11 | 0 |
| Heligoland - - | German Ocean - | 11 | 0 |
| Hellevoetsluis - | Holland - - - | 2 | 0 |
| Holyhead Bay - | Wales - - - | 10 | 0 |
| Horn Point - | Jutland - - | 12 | 0 |
| Howth Harbour | Ireland - - - | 11 | 8 |
| Hull - - - | England - - | 6 | 0 |
| Humber River - | England - - | 5 | 30 |
| Ipswich - - | England - - | 12 | 0 |
| Isle de Bas - - | France - - - | 3 | 17 |
| Jersey (St. Aubin's) | English Channel | 6 | 10 |
| Kenmare River | Ireland - - - | 3 | 30 |
| Kentish Knock - | River Thames - | 11 | 30 |
| King's Road - | Bristol Channel - | 6 | 45 |
| Kinsale Harbour | Ireland - - - | 4 | 30 |
| Kirkcudbright - | Scotland - - | 11 | 15 |
| Land's End - | England - - | 4 | 30 |
| Leith Pier - - | Scotland - - | 2 | 20 |
| Lerwick Harbour | Shetland - - | 9 | 45 |
| Lewis Islands - | Scotland - - | 6 | 0 |
| Liverpool Dock | England - - | 11 | 22 |
| London Bridge - | River Thames - | 2 | 7 |
| Lough Carlingford | Ireland - - - | 11 | 0 |
| Margate Pier - | England - - | 11 | 15 |
| Milford Haven Ent. | Wales - - - | 5 | 45 |
| Montrose - - | Scotland - - | 1 | 45 |
| Morlaix - - - | N. C. of France | 5 | 15 |
| Mount's Bay - | England - - | 4 | 40 |
| Needles Point - | Isle of Wight - | 9 | 45 |
| Newcastle - - | England - - | 4 | 0 |
| Newport - - | Wales - - - | 6 | 45 |
| Nieuport - - | France - - - | 11 | 15 |
| Nore Light - | River Thames - | 1 | 9 |
| Orfordness - - | England - - | 10 | 40 |
| Orkney Isles - | Scotland - - | 10 | 30 |
| Ostend - - - | Flanders - - | 0 | 10 |
| Pembroke Dock Yd. | Wales - - - | 6 | 4 |
| Pentland Frith - | Scotland - - | 10 | 30 |
| Penzance - - | England - - | 4 | 30 |
| Peterhead - - | Scotland - - | 0 | 45 |
| Plymouth Dock Yard | England - - | 5 | 33 |
| Portland Race - - | England - - | 9 | 15 |
| Portland Road - - | England - - | 6 | 15 |
| Port Patrick - - | Scotland - - | 11 | 0 |
| Portsmouth Dock Yd. | England - - | 11 | 40 |
| Rathlin I., Church Bay | N. C. of Irel. | 9 | 0 |
| Ramsgate Harbour | England - - | 11 | 46 |
| Rye Harbour - - | England - - | 10 | 40 |
| Saltees - - - - | Ireland - - | 5 | 40 |
| Scarborough - - | England - - | 4 | 25 |
| Scilly Islands - - | England - - | 4 | 10 |
| Seaford - - - | England - - | 10 | 15 |
| Selsea Harbour - | England - - | 11 | 15 |
| Shannon Mouth - | Ireland - - | 3 | 45 |
| Sheerness Dock Yard | England - - | 0 | 39 |
| Shields - - - - | England - - | 3 | 0 |
| Skerries - - - | Ireland - - | 4 | 45 |
| Sligo Bay - - - | Ireland - - | 6 | 45 |
| Solebay - - - | England - - | 10 | 30 |
| Southampton - - | England - - | 11 | 40 |
| Spithead - - - | England - - | 9 | 30 |
| Spurn Point - - | England - - | 5 | 20 |
| St. Ives - - - | England - - | 4 | 30 |
| St. Malo - - - | France - - | 6 | 0 |
| Stromness - - - | Orkneys - - | 10 | 30 |
| Sunderland - - | England - - | 3 | 0 |
| Swansea Bay - - | Wales - - | 5 | 56 |
| Swin - - - - | River Thames | 12 | 0 |
| Tay Bar - - - | Scotland - - | 1 | 45 |
| Tees River - - | England - - | 3 | 30 |
| Terschelling West | Holland - - | 8 | 40 |
| Texel, Heder Road E. Stream - | Holland - - | 9 | 0 |
| Torbay - - - - | England - - | 6 | 0 |
| Tralee Bay - - | Ireland - - | 3 | 45 |
| Tynemouth Bar - | England - - | 2 | 50 |
| Waterford Harbour | Ireland - - | 5 | 50 |
| Wexford Harbour - | Ireland - - | 7 | 30 |
| Weymouth - - | England - - | 6 | 30 |
| Whitby - - - | England - - | 3 | 45 |
| Wicklow - - - | Ireland - - | 9 | 0 |
| Wisbeach - - - | England - - | 7 | 30 |
| Wranger Oog - - | E. Friesland - | 12 | 0 |
| Yarmouth Roads - | England - - | 8 | 40 |
| Yarmouth Sands - | England - - | 10 | 30 |
| Yorkshire Coast - | England - - | 6 | 0 |
| Youghall - - - | Ireland - - | 5 | [illegible] |

# TABLE,

## SHOWING THE CORRECTION REQUIRED ON ACCOUNT OF SECOND DIFFERENCES,

In finding the Greenwich Time corresponding to a reduced Lunar Distance.

*Arguments*:—Approximate Interval and Difference of Proportional Logarithms.

| Approximate Interval. | | Difference of the Proportional Logarithms in the Ephemeris. | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 | 36 | 38 | 40 | 42 | 44 |
| h m | h m | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s |
| 0 0 | 3 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 10 | 2 50 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 |
| 0 20 | 2 40 | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 5 | 5 | 5 | [illegible] |
| 0 30 | 2 30 | 0 | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 4 | 4 | 5 | 5 | 5 | 6 | 6 | 6 | 7 | 7 | 7 | [illegible] |
| 0 40 | 2 20 | 0 | 1 | 1 | 2 | 2 | 3 | 3 | 3 | 4 | 4 | 5 | 5 | 6 | 6 | 6 | 7 | 7 | 8 | 8 | 9 | 9 | 10 |
| 0 50 | 2 10 | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 5 | 5 | 6 | 6 | 7 | 7 | 8 | 8 | 9 | 9 | 10 | 10 | 11 |
| 1 0 | 2 0 | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 6 | 6 | 7 | 7 | 8 | 8 | 9 | 9 | 10 | 10 | 11 | 12 | 12 |
| 1 10 | 1 50 | 1 | 1 | 2 | 2 | 3 | 4 | 4 | 5 | 5 | 6 | 6 | 7 | 8 | 8 | 9 | 9 | 10 | 11 | 11 | 12 | 12 | 13 |
| 1 20 | 1 40 | 1 | 1 | 2 | 3 | 3 | 4 | 4 | 5 | 6 | 6 | 7 | 7 | 8 | 9 | 9 | 10 | 10 | 11 | 12 | 12 | 13 | 14 |
| 1 30 | 1 30 | 1 | 1 | 2 | 3 | 3 | 4 | 4 | 5 | 6 | 6 | 7 | 8 | 8 | 9 | 9 | 10 | 11 | 11 | 12 | 12 | 13 | 14 |

| Approximate Interval. | | Difference of the Proportional Logarithms in the Ephemeris. | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 46 | 48 | 50 | 52 | 54 | 56 | 58 | 60 | 62 | 64 | 66 | 68 | 70 | 72 | 74 | 76 | 78 | 80 | 82 | 84 | 86 | 88 |
| h m | h m | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s |
| 0 0 | 3 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 10 | 2 50 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 |
| 0 20 | 2 40 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 10 | 10 | 10 | 10 | 11 | 11 |
| 0 30 | 2 30 | 8 | 8 | 9 | 9 | 9 | 10 | 10 | 10 | 11 | 11 | 12 | 12 | 12 | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 15 | 15 |
| 0 40 | 2 20 | 10 | 10 | 11 | 11 | 12 | 12 | 13 | 13 | 13 | 14 | 14 | 15 | 15 | 16 | 16 | 16 | 17 | 17 | 18 | 18 | 19 | 19 |
| 0 50 | 2 10 | 12 | 12 | 13 | 13 | 14 | 14 | 15 | 15 | 16 | 16 | 16 | 17 | 17 | 18 | 19 | 19 | 20 | 20 | 21 | 21 | 22 | 22 |
| 1 0 | 2 0 | 13 | 13 | 14 | 14 | 15 | 16 | 16 | 17 | 17 | 18 | 18 | 19 | 19 | 20 | 21 | 21 | 22 | 22 | 23 | 23 | 24 | 24 |
| 1 10 | 1 50 | 14 | 14 | 15 | 15 | 16 | 17 | 17 | 18 | 18 | 19 | 19 | 20 | 21 | 21 | 22 | 22 | 23 | 24 | 24 | 25 | 25 | 26 |
| 1 20 | 1 40 | 14 | 15 | 15 | 16 | 17 | 17 | 18 | 19 | 19 | 20 | 20 | 21 | 21 | 22 | 23 | 23 | 24 | 25 | 25 | 26 | 26 | 27 |
| 1 30 | 1 30 | 14 | 15 | 16 | 16 | 17 | 18 | 18 | 19 | 19 | 20 | 21 | 21 | 22 | 23 | 23 | 24 | 24 | 25 | 25 | 26 | 27 | 27 |

The Correction given in this Table is to be *added* to the approximate Greenwich Time when the Proportional Logarithms in the Ephemeris are *decreasing*, and *subtracted* when they are *increasing*.

## ABLES FOR DETERMINING THE LATITUDE BY OBSERVATIONS OF THE POLE STAR OUT OF THE MERIDIAN.

### TABLE I.

Containing the *First* Correction.

*Argument:*—Sidereal Time of Observation.

| Sidereal Time. | Correction. | Sidereal Time. | Sidereal Time. | Correction. | Sidereal Time. |
|---|---|---|---|---|---|
| h m | ° ′ ″ | h m | h m | ° ′ ″ | h m |
| 0 0 | − 1 29 44 + | 12 0 | 6 0 | − 0 24 48 + | 18 0 |
| 10 | 1 30 44 | 10 | 10 | 0 20 52 | 10 |
| 20 | 1 31 33 | 20 | 20 | 0 16 53 | 20 |
| 30 | 1 32 12 | 30 | 30 | 0 12 53 | 30 |
| 40 | 1 32 41 | 40 | 40 | 0 8 51 | 40 |
| 50 | 1 32 59 | 50 | 50 | 0 4 47 | 50 |
| 1 0 | 1 33 6 | 13 0 | 7 0 | − 0 0 44 + | 19 0 |
| 10 | 1 33 2 | 10 | 10 | + 0 3 20 − | 10 |
| 20 | 1 32 48 | 20 | 20 | 0 7 23 | 20 |
| 30 | 1 32 24 | 30 | 30 | 0 11 26 | 30 |
| 40 | 1 31 49 | 40 | 40 | 0 15 27 | 40 |
| 50 | 1 31 3 | 50 | 50 | 0 19 26 | 50 |
| 2 0 | 1 30 7 | 14 0 | 8 0 | 0 23 23 | 20 0 |
| 10 | 1 29 1 | 10 | 10 | 0 27 18 | 10 |
| 20 | 1 27 44 | 20 | 20 | 0 31 9 | 20 |
| 30 | 1 26 17 | 30 | 30 | 0 34 57 | 30 |
| 40 | 1 24 41 | 40 | 40 | 0 38 41 | 40 |
| 50 | 1 22 55 | 50 | 50 | 0 42 20 | 50 |
| 3 0 | 1 20 59 | 15 0 | 9 0 | 0 45 55 | 21 0 |
| 10 | 1 18 55 | 10 | 10 | 0 49 24 | 10 |
| 20 | 1 16 41 | 20 | 20 | 0 52 48 | 20 |
| 30 | 1 14 18 | 30 | 30 | 0 56 6 | 30 |
| 40 | 1 11 47 | 40 | 40 | 0 59 17 | 40 |
| 50 | 1 9 9 | 50 | 50 | 1 2 21 | 50 |
| 4 0 | 1 6 21 | 16 0 | 10 0 | 1 5 19 | 22 0 |
| 10 | 1 3 26 | 10 | 10 | 1 8 9 | 10 |
| 20 | 1 0 24 | 20 | 20 | 1 10 51 | 20 |
| 30 | 0 57 15 | 30 | 30 | 1 13 25 | 30 |
| 40 | 0 54 0 | 40 | 40 | 1 15 51 | 40 |
| 50 | 0 50 38 | 50 | 50 | 1 18 8 | 50 |
| 5 0 | 0 47 11 | 17 0 | 11 0 | 1 20 15 | 23 0 |
| 10 | 0 43 38 | 10 | 10 | 1 22 14 | 10 |
| 20 | 0 40 0 | 20 | 20 | 1 24 4 | 20 |
| 30 | 0 36 18 | 30 | 30 | 1 25 44 | 30 |
| 40 | 0 32 32 | 40 | 40 | 1 27 14 | 40 |
| 50 | 0 28 42 | 50 | 50 | 1 28 34 | 50 |
| 6 0 | − 0 24 48 + | 18 0 | 12 0 | + 1 29 44 − | 24 0 |

## TABLE II.

Containing the *Second* Correction, (*always to be added.*)

*Arguments:*—Sidereal Time and Approximate Latitude.

| Sidereal Time. | Approximate Latitude. 0° | 5° | 10° | 15° | 20° | 25° | 30° | 35° | Sidereal Time. |
|---|---|---|---|---|---|---|---|---|---|
| h m | ′ ″ | ′ ″ | ′ ″ | ′ ″ | ′ ″ | ′ ″ | ′ ″ | ′ ″ | h m |
| 0 0 | 0 0 | 0 0 | 0 1 | 0 1 | 0 2 | 0 3 | 0 3 | 0 4 | 12 0 |
| 30 | 0 0 | 0 0 | 0 0 | 0 0 | 0 1 | 0 1 | 0 1 | 0 1 | 30 |
| 1 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 13 0 |
| 30 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 1 | 0 1 | 0 1 | 30 |
| 2 0 | 0 0 | 0 0 | 0 1 | 0 1 | 0 2 | 0 2 | 0 3 | 0 3 | 14 0 |
| 30 | 0 0 | 0 1 | 0 2 | 0 3 | 0 4 | 0 5 | 0 6 | 0 7 | 30 |
| 3 0 | 0 0 | 0 2 | 0 3 | 0 5 | 0 7 | 0 9 | 0 11 | 0 13 | 15 0 |
| 30 | 0 0 | 0 2 | 0 5 | 0 7 | 0 10 | 0 12 | 0 16 | 0 19 | 30 |
| 4 0 | 0 0 | 0 3 | 0 7 | 0 10 | 0 14 | 0 17 | 0 21 | 0 26 | 16 0 |
| 30 | 0 0 | 0 4 | 0 8 | 0 13 | 0 17 | 0 22 | 0 27 | 0 33 | 30 |
| 5 0 | 0 0 | 0 5 | 0 10 | 0 15 | 0 20 | 0 26 | 0 32 | 0 39 | 17 0 |
| 30 | 0 0 | 0 6 | 0 11 | 0 17 | 0 23 | 0 30 | 0 37 | 0 45 | 30 |
| 6 0 | 0 0 | 0 6 | 0 12 | 0 19 | 0 26 | 0 33 | 0 41 | 0 49 | 18 0 |
| 30 | 0 0 | 0 6 | 0 13 | 0 20 | 0 27 | 0 35 | 0 43 | 0 51 | 30 |
| 7 0 | 0 0 | 0 7 | 0 13 | 0 20 | 0 28 | 0 35 | 0 44 | 0 53 | 19 0 |
| 30 | 0 0 | 0 7 | 0 13 | 0 20 | 0 27 | 0 35 | 0 43 | 0 52 | 30 |
| 8 0 | 0 0 | 0 6 | 0 12 | 0 19 | 0 26 | 0 33 | 0 41 | 0 50 | 20 0 |
| 30 | 0 0 | 0 6 | 0 11 | 0 17 | 0 24 | 0 30 | 0 38 | 0 45 | 30 |
| 9 0 | 0 0 | 0 5 | 0 10 | 0 15 | 0 21 | 0 27 | 0 33 | 0 40 | 21 0 |
| 30 | 0 0 | 0 4 | 0 8 | 0 13 | 0 18 | 0 22 | 0 28 | 0 34 | 30 |
| 10 0 | 0 0 | 0 3 | 0 7 | 0 10 | 0 14 | 0 18 | 0 22 | 0 27 | 22 0 |
| 30 | 0 0 | 0 3 | 0 5 | 0 8 | 0 10 | 0 13 | 0 17 | 0 20 | 30 |
| 11 0 | 0 0 | 0 2 | 0 3 | 0 5 | 0 7 | 0 9 | 0 11 | 0 14 | 23 0 |
| 30 | 0 0 | 0 1 | 0 2 | 0 3 | 0 4 | 0 5 | 0 7 | 0 8 | 30 |
| 12 0 | 0 0 | 0 0 | 0 1 | 0 1 | 0 2 | 0 3 | 0 3 | 0 4 | 24 0 |

## TABLE III. (*for* 1839.)

Containing the *Third* Correction, (*always to be added.*)

*Arguments:*—Sidereal Time and Date.

| Sidereal Time. | Jan. 1. | Feb. 1. | March 1. | April 1. | May 1. | June 1. | July 1. |
|---|---|---|---|---|---|---|---|
| h | ′ ″ | ′ ″ | ′ ″ | ′ ″ | ′ ″ | ′ ″ | ′ ″ |
| 0 | 1 29 | 1 27 | 1 20 | 1 10 | 1 3 | 0 59 | 1 1 |
| 2 | 1 31 | 1 34 | 1 30 | 1 23 | 1 14 | 1 6 | 1 3 |
| 4 | 1 25 | 1 32 | 1 33 | 1 29 | 1 21 | 1 12 | 1 4 |
| 6 | 1 12 | 1 21 | 1 27 | 1 27 | 1 23 | 1 14 | 1 5 |
| 8 | 0 56 | 1 5 | 1 13 | 1 19 | 1 18 | 1 13 | 1 4 |
| 10 | 0 41 | 0 48 | 0 56 | 1 5 | 1 9 | 1 8 | 1 2 |
| 12 | 0 31 | 0 33 | 0 40 | 0 50 | 0 57 | 1 1 | 0 59 |
| 14 | 0 29 | 0 26 | 0 30 | 0 37 | 0 46 | 0 54 | 0 57 |
| 16 | 0 35 | 0 28 | 0 27 | 0 31 | 0 39 | 0 48 | 0 56 |
| 18 | 0 48 | 0 39 | 0 33 | 0 33 | 0 37 | 0 46 | 0 55 |
| 20 | 1 4 | 0 55 | 0 47 | 0 41 | 0 42 | 0 47 | 0 55 |
| 22 | 1 19 | 1 12 | 1 4 | 0 55 | 0 51 | 0 52 | 0 58 |
| 24 | 1 29 | 1 27 | 1 20 | 1 10 | 1 3 | 0 59 | 1 1 |

## TABLE II.

Containing the *Second* Correction, (*always to be added.*)

*Arguments:*—Sidereal Time and Approximate Latitude.

| Sidereal Time. | Approximate Latitude. 35° | 40° | 45° | 50° | 55° | 60° | 65° | 70° | Sidereal Time. |
|---|---|---|---|---|---|---|---|---|---|
| h m | ′ ″ | ′ ″ | ′ ″ | ′ ″ | ′ ″ | ′ ″ | ′ ″ | ′ ″ | h m |
| 0 0 | 0 4 | 0 5 | 0 5 | 0 6 | 0 8 | 0 9 | 0 12 | 0 15 | 12 0 |
| 30 | 0 1 | 0 1 | 0 1 | 0 2 | 0 2 | 0 3 | 0 3 | 0 4 | 30 |
| 1 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 13 0 |
| 30 | 0 1 | 0 1 | 0 1 | 0 1 | 0 2 | 0 2 | 0 2 | 0 3 | 30 |
| 2 0 | 0 3 | 0 4 | 0 5 | 0 6 | 0 7 | 0 8 | 0 10 | 0 13 | 14 0 |
| 30 | 0 7 | 0 9 | 0 11 | 0 13 | 0 15 | 0 18 | 0 23 | 0 29 | 30 |
| 3 0 | 0 13 | 0 15 | 0 18 | 0 22 | 0 26 | 0 32 | 0 39 | 0 51 | 15 0 |
| 30 | 0 19 | 0 23 | 0 27 | 0 33 | 0 39 | 0 48 | 0 59 | 1 15 | 30 |
| 4 0 | 0 26 | 0 31 | 0 37 | 0 44 | 0 53 | 1 4 | 1 20 | 1 42 | 16 0 |
| 30 | 0 33 | 0 39 | 0 47 | 0 56 | 1 7 | 1 21 | 1 41 | 2 9 | 30 |
| 5 0 | 0 39 | 0 47 | 0 56 | 1 7 | 1 20 | 1 37 | 2 1 | 2 34 | 17 0 |
| 30 | 0 45 | 0 54 | 1 4 | 1 16 | 1 32 | 1 51 | 2 17 | 2 56 | 30 |
| 6 0 | 0 49 | 0 59 | 1 10 | 1 24 | 1 40 | 2 2 | 2 31 | 3 13 | 18 0 |
| 30 | 0 51 | 1 2 | 1 14 | 1 28 | 1 46 | 2 9 | 2 39 | 3 24 | 30 |
| 7 0 | 0 53 | 1 3 | 1 16 | 1 30 | 1 48 | 2 11 | 2 42 | 3 28 | 19 0 |
| 30 | 0 52 | 1 3 | 1 14 | 1 29 | 1 46 | 2 9 | 2 40 | 3 25 | 30 |
| 8 0 | 0 50 | 0 59 | 1 11 | 1 24 | 1 41 | 2 3 | 2 32 | 3 15 | 20 0 |
| 30 | 0 45 | 0 55 | 1 5 | 1 17 | 1 33 | 1 53 | 2 19 | 2 59 | 30 |
| 9 0 | 0 40 | 0 48 | 0 57 | 1 8 | 1 22 | 1 40 | 2 3 | 2 37 | 21 0 |
| 30 | 0 34 | 0 40 | 0 48 | 0 57 | 1 9 | 1 23 | 1 43 | 2 12 | 30 |
| 10 0 | 0 27 | 0 32 | 0 38 | 0 46 | 0 55 | 1 7 | 1 22 | 1 46 | 22 0 |
| 30 | 0 20 | 0 24 | 0 29 | 0 34 | 0 41 | 0 50 | 1 1 | 1 19 | 30 |
| 11 0 | 0 14 | 0 16 | 0 19 | 0 23 | 0 28 | 0 34 | 0 42 | 0 53 | 23 0 |
| 30 | 0 8 | 0 10 | 0 12 | 0 14 | 0 16 | 0 20 | 0 25 | 0 32 | 30 |
| 12 0 | 0 4 | 0 5 | 0 5 | 0 6 | 0 8 | 0 9 | 0 12 | 0 15 | 24 0 |

## TABLE III. (*for* 1839.)

Containing the *Third* Correction, (*always to be added.*)

*Arguments:*—Sidereal Time and Date.

| Sidereal Time. | July 1. | Aug. 1. | Sept. 1. | Oct. 1. | Nov. 1. | Dec. 1. | Dec. 31. |
|---|---|---|---|---|---|---|---|
| h | ′ ″ | ′ ″ | ′ ″ | ′ ″ | ′ ″ | ′ ″ | ′ ″ |
| 0 | 1 1 | 1 7 | 1 18 | 1 29 | 1 41 | 1 49 | 1 52 |
| 2 | 1 3 | 1 4 | 1 11 | 1 20 | 1 32 | 1 42 | 1 50 |
| 4 | 1 4 | 1 0 | 1 1 | 1 6 | 1 14 | 1 24 | 1 34 |
| 6 | 1 5 | 0 56 | 0 51 | 0 50 | 0 53 | 1 0 | 1 10 |
| 8 | 1 4 | 0 53 | 0 43 | 0 37 | 0 34 | 0 36 | 0 42 |
| 10 | 1 2 | 0 52 | 0 40 | 0 30 | 0 21 | 0 18 | 0 20 |
| 12 | 0 59 | 0 53 | 0 42 | 0 31 | 0 19 | 0 11 | 0 8 |
| 14 | 0 57 | 0 56 | 0 49 | 0 40 | 0 28 | 0 18 | 0 10 |
| 16 | 0 56 | 1 0 | 0 59 | 0 54 | 0 46 | 0 36 | 0 26 |
| 18 | 0 55 | 1 4 | 1 9 | 1 10 | 1 7 | 1 0 | 0 50 |
| 20 | 0 56 | 1 7 | 1 17 | 1 23 | 1 26 | 1 24 | 1 18 |
| 22 | 0 58 | 1 8 | 1 20 | 1 30 | 1 39 | 1 42 | 1 40 |
| 24 | 1 1 | 1 7 | 1 18 | 1 29 | 1 41 | 1 49 | 1 52 |

## TABLE

For converting INTERVALS of MEAN SOLAR Time into Equivalent INTERV of SIDEREAL Time.

| HOURS. | | MINUTES. | | | | SECONDS. | | | |
|---|---|---|---|---|---|---|---|---|---|
| Hours of Mean Time. | Equivalents in Sidereal Time. | Minutes of Mean Time. | Equivalents in Sidereal Time. | Minutes of Mean Time. | Equivalents in Sidereal Time. | Seconds of Mean Time. | Equivalents in Sidereal Time. | Seconds of Mean Time. | Eq |
| | h m s | | m s | | m s | | s | | |
| 1 | 1 0 9·8565 | 1 | 1 0·1643 | 31 | 31 5·0925 | 1 | 1·0027 | 31 | 3 |
| 2 | 2 0 19·7130 | 2 | 2 0·3286 | 32 | 32 5·2568 | 2 | 2·0055 | 32 | 3 |
| 3 | 3 0 29·5694 | 3 | 3 0·4928 | 33 | 33 5·4211 | 3 | 3·0082 | 33 | 3 |
| 4 | 4 0 39·4259 | 4 | 4 0·6571 | 34 | 34 5·5853 | 4 | 4·0110 | 34 | 3 |
| 5 | 5 0 49·2824 | 5 | 5 0·8214 | 35 | 35 5·7496 | 5 | 5·0137 | 35 | 3 |
| 6 | 6 0 59·1388 | 6 | 6 0·9857 | 36 | 36 5·9139 | 6 | 6·0164 | 36 | 3 |
| 7 | 7 1 8·9953 | 7 | 7 1·1499 | 37 | 37 6·0782 | 7 | 7·0192 | 37 | 3 |
| 8 | 8 1 18·8518 | 8 | 8 1·3142 | 38 | 38 6·2424 | 8 | 8·0219 | 38 | 3 |
| 9 | 9 1 28·7083 | 9 | 9 1·4785 | 39 | 39 6·4067 | 9 | 9·0246 | 39 | 3 |
| 10 | 10 1 38·5647 | 10 | 10 1·6428 | 40 | 40 6·5710 | 10 | 10·0274 | 40 | 4 |
| 11 | 11 1 48·4212 | 11 | 11 1·8070 | 41 | 41 6·7353 | 11 | 11·0301 | 41 | 4 |
| 12 | 12 1 58·2777 | 12 | 12 1·9713 | 42 | 42 6·8995 | 12 | 12·0329 | 42 | 4 |
| 13 | 13 2 8·1342 | 13 | 13 2·1356 | 43 | 43 7·0638 | 13 | 13·0356 | 43 | 4 |
| 14 | 14 2 17·9906 | 14 | 14 2·2998 | 44 | 44 7·2281 | 14 | 14·0383 | 44 | 4 |
| 15 | 15 2 27·8471 | 15 | 15 2·4641 | 45 | 45 7·3924 | 15 | 15·0411 | 45 | 4 |
| 16 | 16 2 37·7036 | 16 | 16 2·6284 | 46 | 46 7·5566 | 16 | 16·0438 | 46 | 4 |
| 17 | 17 2 47·5600 | 17 | 17 2·7927 | 47 | 47 7·7209 | 17 | 17·0465 | 47 | 4 |
| 18 | 18 2 57·4165 | 18 | 18 2·9569 | 48 | 48 7·8852 | 18 | 18·0493 | 48 | 4 |
| 19 | 19 3 7·2730 | 19 | 19 3·1212 | 49 | 49 8·0495 | 19 | 19·0520 | 49 | 4 |
| 20 | 20 3 17·1295 | 20 | 20 3·2855 | 50 | 50 8·2137 | 20 | 20·0548 | 50 | 5 |
| 21 | 21 3 26·9859 | 21 | 21 3·4498 | 51 | 51 8·3780 | 21 | 21·0575 | 51 | 5 |
| 22 | 22 3 36·8424 | 22 | 22 3·6140 | 52 | 52 8·5423 | 22 | 22·0602 | 52 | 5 |
| 23 | 23 3 46·6989 | 23 | 23 3·7783 | 53 | 53 8·7066 | 23 | 23·0630 | 53 | 5 |
| 24 | 24 3 56·5554 | 24 | 24 3·9426 | 54 | 54 8·8708 | 24 | 24·0657 | 54 | 5 |
| | | 25 | 25 4·1069 | 55 | 55 9·0351 | 25 | 25·0685 | 55 | 5 |
| | | 26 | 26 4·2711 | 56 | 56 9·1994 | 26 | 26·0712 | 56 | 5 |
| | | 27 | 27 4·4354 | 57 | 57 9·3637 | 27 | 27·0739 | 57 | 5 |
| | | 28 | 28 4·5997 | 58 | 58 9·5279 | 28 | 28·0767 | 58 | 5 |
| | | 29 | 29 4·7640 | 59 | 59 9·6922 | 29 | 29·0794 | 59 | 5 |
| | | 30 | 30 4·9282 | 60 | 60 9·8565 | 30 | 30·0821 | 60 | 6 |

## TABLE

r converting INTERVALS of MEAN SOLAR Time into Equivalent INTERVALS of SIDEREAL Time.

FRACTIONS OF A SECOND.

| Equivalents in Sidereal Time. | Seconds of Mean Time. | Equivalents in Sidereal Time. | Seconds of Mean Time. | Equivalents in Sidereal Time. |
|---|---|---|---|---|
| s | | s | | s |
| 0 ·01003 | 0 ·34 | 0 ·34093 | 0 ·67 | 0 ·67183 |
| 0 ·02006 | 0 ·35 | 0 ·35096 | 0 ·68 | 0 ·68186 |
| 0 ·03008 | 0 ·36 | 0 ·36099 | 0 ·69 | 0 ·69189 |
| 0 ·04011 | 0 ·37 | 0 ·37101 | 0 ·70 | 0 ·70192 |
| 0 ·05014 | 0 ·38 | 0 ·38104 | 0 ·71 | 0 ·71194 |
| 0 ·06016 | 0 ·39 | 0 ·39107 | 0 ·72 | 0 ·72197 |
| 0 ·07019 | 0 ·40 | 0 ·40110 | 0 ·73 | 0 ·73200 |
| 0 ·08022 | 0 ·41 | 0 ·41112 | 0 ·74 | 0 ·74203 |
| 0 ·09025 | 0 ·42 | 0 ·42115 | 0 ·75 | 0 ·75205 |
| 0 ·10027 | 0 ·43 | 0 ·43118 | 0 ·76 | 0 ·76208 |
| 0 ·11030 | 0 ·44 | 0 ·44120 | 0 ·77 | 0 ·77211 |
| 0 ·12033 | 0 ·45 | 0 ·45123 | 0 ·78 | 0 ·78214 |
| 0 ·13036 | 0 ·46 | 0 ·46126 | 0 ·79 | 0 ·79216 |
| 0 ·14038 | 0 ·47 | 0 ·47129 | 0 ·80 | 0 ·80219 |
| 0 ·15041 | 0 ·48 | 0 ·48131 | 0 ·81 | 0 ·81222 |
| 0 ·16044 | 0 ·49 | 0 ·49134 | 0 ·82 | 0 ·82225 |
| 0 ·17047 | 0 ·50 | 0 ·50137 | 0 ·83 | 0 ·83227 |
| 0 ·18049 | 0 ·51 | 0 ·51140 | 0 ·84 | 0 ·84230 |
| 0 ·19052 | 0 ·52 | 0 ·52142 | 0 ·85 | 0 ·85233 |
| 0 ·20055 | 0 ·53 | 0 ·53145 | 0 ·86 | 0 ·86235 |
| 0 ·21057 | 0 ·54 | 0 ·54148 | 0 ·87 | 0 ·87238 |
| 0 ·22060 | 0 ·55 | 0 ·55151 | 0 ·88 | 0 ·88241 |
| 0 ·23063 | 0 ·56 | 0 ·56153 | 0 ·89 | 0 ·89244 |
| 0 ·24066 | 0 ·57 | 0 ·57156 | 0 ·90 | 0 ·90246 |
| 0 ·25068 | 0 ·58 | 0 ·58159 | 0 ·91 | 0 ·91249 |
| 0 ·26071 | 0 ·59 | 0 ·59162 | 0 ·92 | 0 ·92252 |
| 0 ·27074 | 0 ·60 | 0 ·60164 | 0 ·93 | 0 ·93255 |
| 0 ·28077 | 0 ·61 | 0 ·61167 | 0 ·94 | 0 ·94257 |
| 0 ·29079 | 0 ·62 | 0 ·62170 | 0 ·95 | 0 ·95260 |
| 0 ·30082 | 0 ·63 | 0 ·63173 | 0 ·96 | 0 ·96263 |
| 0 ·31085 | 0 ·64 | 0 ·64175 | 0 ·97 | 0 ·97266 |
| 0 ·32088 | 0 ·65 | 0 ·65178 | 0 ·98 | 0 ·98268 |
| 0 ·33090 | 0 ·66 | 0 ·66181 | 0 ·99 | 0 ·99271 |

This TABLE is useful for the conversion of MEAN SOLAR into SIDEREAL Time.

Sidereal Time *required* = Sidereal Time at the *preceding* Mean Noon + the Equivalent to the *given* Mean Time.

EXAMPLE.—To convert $2^h\ 22^m\ 25^s{\cdot}62$ Mean Time at Greenwich, Jan. 2, 1839, into Sidereal Time.

| | | |
|---|---|---|
| Sidereal Time at the *preceding* Mean Noon, viz. January 2 - - - - - - - - | | $18^h\ 45^m\ 45^s{\cdot}17$ |
| For Mean Intervals, | $2^h\ 0^m\ 0^s$ | The Table gives the Equivalent Sidereal Intervals, $2\ 0\ 19{\cdot}71$ |
| | $22\ 0$ | $22\ 3{\cdot}61$ |
| | $25$ | $25{\cdot}07$ |
| | $0{\cdot}62$ | $0{\cdot}62$ |
| The Sum is the Sidereal Time required, | | $21\ 8\ 34{\cdot}18$ |

## TABLE

For converting INTERVALS of SIDEREAL Time into Equivalent INTE
MEAN SOLAR Time.

| HOURS. | | MINUTES. | | | | SECONI | |
|---|---|---|---|---|---|---|---|
| Hours of Sidereal Time. | Equivalents in Mean Time. | Minutes of Sidereal Time. | Equivalents in Mean Time. | Minutes of Sidereal Time. | Equivalents in Mean Time. | Seconds of Sidereal Time. | Equivalents in Mean Time. |
| | h m s | | m s | | m s | | s |
| 1 | 0 59 50·1704 | 1 | 0 59·8362 | 31 | 30 54·9214 | 1 | 0·9973 |
| 2 | 1 59 40·3409 | 2 | 1 59·6723 | 32 | 31 54·7576 | 2 | 1·9945 |
| 3 | 2 59 30·5113 | 3 | 2 59·5085 | 33 | 32 54·5937 | 3 | 2·9918 |
| 4 | 3 59 20·6818 | 4 | 3 59·3447 | 34 | 33 54·4299 | 4 | 3·9891 |
| 5 | 4 59 10·8522 | 5 | 4 59·1809 | 35 | 34 54·2661 | 5 | 4·9864 |
| 6 | 5 59 1·0226 | 6 | 5 59·0170 | 36 | 35 54·1023 | 6 | 5·9836 |
| 7 | 6 58 51·1931 | 7 | 6 58·8532 | 37 | 36 53·9384 | 7 | 6·9809 |
| 8 | 7 58 41·3635 | 8 | 7 58·6894 | 38 | 37 53·7746 | 8 | 7·9782 |
| 9 | 8 58 31·5340 | 9 | 8 58·5256 | 39 | 38 53·6108 | 9 | 8·9754 |
| 10 | 9 58 21·7044 | 10 | 9 58·3617 | 40 | 39 53·4470 | 10 | 9·9727 |
| 11 | 10 58 11·8748 | 11 | 10 58·1979 | 41 | 40 53·2831 | 11 | 10·9700 |
| 12 | 11 58 2·0453 | 12 | 11 58·0341 | 42 | 41 53·1193 | 12 | 11·9672 |
| 13 | 12 57 52·2157 | 13 | 12 57·8703 | 43 | 42 52·9555 | 13 | 12·9645 |
| 14 | 13 57 42·3862 | 14 | 13 57·7064 | 44 | 43 52·7917 | 14 | 13·9618 |
| 15 | 14 57 32·5566 | 15 | 14 57·5426 | 45 | 44 52·6278 | 15 | 14·9591 |
| 16 | 15 57 22·7270 | 16 | 15 57·3788 | 46 | 45 52·4640 | 16 | 15·9563 |
| 17 | 16 57 12·8975 | 17 | 16 57·2150 | 47 | 46 52·3002 | 17 | 16·9536 |
| 18 | 17 57 3·0679 | 18 | 17 57·0511 | 48 | 47 52·1364 | 18 | 17·9509 |
| 19 | 18 56 53·2384 | 19 | 18 56·8873 | 49 | 48 51·9725 | 19 | 18·9481 |
| 20 | 19 56 43·4088 | 20 | 19 56·7235 | 50 | 49 51·8087 | 20 | 19·9454 |
| 21 | 20 56 33·5792 | 21 | 20 56·5597 | 51 | 50 51·6449 | 21 | 20·9427 |
| 22 | 21 56 23·7497 | 22 | 21 56·3958 | 52 | 51 51·4810 | 22 | 21·9399 |
| 23 | 22 56 13·9201 | 23 | 22 56·2320 | 53 | 52 51·3172 | 23 | 22·9372 |
| 24 | 23 56 4·0906 | 24 | 23 56·0682 | 54 | 53 51·1534 | 24 | 23·9345 |
| | | 25 | 24 55·9044 | 55 | 54 50·9896 | 25 | 24·9318 |
| | | 26 | 25 55·7405 | 56 | 55 50·8257 | 26 | 25·9290 |
| | | 27 | 26 55·5767 | 57 | 56 50·6619 | 27 | 26·9263 |
| | | 28 | 27 55·4129 | 58 | 57 50·4981 | 28 | 27·9236 |
| | | 29 | 28 55·2490 | 59 | 58 50·3343 | 29 | 28·9208 |
| | | 30 | 29 55·0852 | 60 | 59 50·1704 | 30 | 29·9181 |

## TABLE

ng Intervals of Sidereal Time into Equivalent Intervals of Mean Solar Time.

FRACTIONS OF A SECOND.

| alents n a Time. | Seconds of Sidereal Time. | Equivalents in Mean Time. | Seconds of Sidereal Time. | Equivalents in Mean Time. |
|---|---|---|---|---|
| | | s | | s |
| ·00997 | 0·34 | 0·33907 | 0·67 | 0·66817 |
| ·01995 | 0·35 | 0·34904 | 0·68 | 0·67814 |
| ·02992 | 0·36 | 0·35902 | 0·69 | 0·68812 |
| 0·03989 | 0·37 | 0·36899 | 0·70 | 0·69809 |
| 0·04986 | 0·38 | 0·37896 | 0·71 | 0·70806 |
| 0·05984 | 0·39 | 0·38894 | 0·72 | 0·71803 |
| 0·06981 | 0·40 | 0·39891 | 0·73 | 0·72801 |
| 0·07978 | 0·41 | 0·40888 | 0·74 | 0·73798 |
| 0·08975 | 0·42 | 0·41885 | 0·75 | 0·74795 |
| 0·09973 | 0·43 | 0·42883 | 0·76 | 0·75793 |
| 0·10970 | 0·44 | 0·43880 | 0·77 | 0·76790 |
| 0·11967 | 0·45 | 0·44877 | 0·78 | 0·77787 |
| 13 0·12965 | 0·46 | 0·45874 | 0·79 | 0·78784 |
| 14 0·13962 | 0·47 | 0·46872 | 0·80 | 0·79782 |
| 15 0·14959 | 0·48 | 0·47869 | 0·81 | 0·80779 |
| 0·16 0·15956 | 0·49 | 0·48866 | 0·82 | 0·81776 |
| 0·17 0·16954 | 0·50 | 0·49864 | 0·83 | 0·82773 |
| 0·18 0·17951 | 0·51 | 0·50861 | 0·84 | 0·83771 |
| 0·19 0·18948 | 0·52 | 0·51858 | 0·85 | 0·84768 |
| 0·20 0·19945 | 0·53 | 0·52855 | 0·86 | 0·85765 |
| 0·21 0·20943 | 0·54 | 0·53853 | 0·87 | 0·86762 |
| 0·22 0·21940 | 0·55 | 0·54850 | 0·88 | 0·87760 |
| 0·23 0·22937 | 0·56 | 0·55847 | 0·89 | 0·88757 |
| 0·24 0·23934 | 0·57 | 0·56844 | 0·90 | 0·89754 |
| 0·25 0·24932 | 0·58 | 0·57842 | 0·91 | 0·90752 |
| 0·26 0·25929 | 0·59 | 0·58839 | 0·92 | 0·91749 |
| 0·27 0·26926 | 0·60 | 0·59836 | 0·93 | 0·92746 |
| 0·28 0·27924 | 0·61 | 0·60833 | 0·94 | 0·93743 |
| 0·29 0·28921 | 0·62 | 0·61831 | 0·95 | 0·94741 |
| 0·30 0·29918 | 0·63 | 0·62828 | 0·96 | 0·95738 |
| 0·31 0·30915 | 0·64 | 0·63825 | 0·97 | 0·96735 |
| 0·32 0·31913 | 0·65 | 0·64823 | 0·98 | 0·97732 |
| 0·33 0·32910 | 0·66 | 0·65820 | 0·99 | 0·98730 |

This Table is useful for the conversion of Sidereal into Mean Solar Time.

Mean Solar Time *required* = Mean Time at the *preceding* Sidereal Noon + the Equivalent to the *given* Sidereal Time.

Example.—To convert $21^h\ 8^m\ 34^s{\cdot}18$ Sidereal Time at Greenwich, Jan. 2, 1839, into Mean Time.

Mean Time at the *preceding* Sidereal Noon, viz. - - - - - January 1 $^d$ 5 $^h$ 17 $^m$ 19·26 $^s$

For Sidereal Intervals. $21^h\ 0^m\ 0^s$ / 8 0 / 34 / 0·18 — The Table gives the Equivalent Mean Intervals, 20 56 33·58 / 7 58·69 / 33·91 / ·18

The Sum is the Mean Time required, Jan. 2 2 22 25·62

## TABLE

For converting INTERVALS of SIDEREAL Time into Equivalent INTERVALS of MEAN SOLAR Time.

| HOURS. | | MINUTES. | | | | SECONDS. | | |
|---|---|---|---|---|---|---|---|---|
| Hours of Sidereal Time. | Equivalents in Mean Time. | Minutes of Sidereal Time. | Equivalents in Mean Time. | Minutes of Sidereal Time. | Equivalents in Mean Time. | Seconds of Sidereal Time. | Equivalents in Mean Time. | Seconds of Sidereal Time. |
| | h m s | | m s | | m s | | s | |
| 1 | 0 59 50·1704 | 1 | 0 59·8362 | 31 | 30 54·9214 | 1 | 0·9973 | 31 |
| 2 | 1 59 40·3409 | 2 | 1 59·6723 | 32 | 31 54·7576 | 2 | 1·9945 | 32 |
| 3 | 2 59 30·5113 | 3 | 2 59·5085 | 33 | 32 54·5937 | 3 | 2·9918 | 33 |
| 4 | 3 59 20·6818 | 4 | 3 59·3447 | 34 | 33 54·4299 | 4 | 3·9891 | 34 |
| 5 | 4 59 10·8522 | 5 | 4 59·1809 | 35 | 34 54·2661 | 5 | 4·9864 | 35 |
| 6 | 5 59 1·0226 | 6 | 5 59·0170 | 36 | 35 54·1023 | 6 | 5·9836 | 36 |
| 7 | 6 58 51·1931 | 7 | 6 58·8532 | 37 | 36 53·9384 | 7 | 6·9809 | 37 |
| 8 | 7 58 41·3635 | 8 | 7 58·6894 | 38 | 37 53·7746 | 8 | 7·9782 | 38 |
| 9 | 8 58 31·5340 | 9 | 8 58·5256 | 39 | 38 53·6108 | 9 | 8·9754 | 39 |
| 10 | 9 58 21·7044 | 10 | 9 58·3617 | 40 | 39 53·4470 | 10 | 9·9727 | 40 |
| 11 | 10 58 11·8748 | 11 | 10 58·1979 | 41 | 40 53·2831 | 11 | 10·9700 | 41 |
| 12 | 11 58 2·0453 | 12 | 11 58·0341 | 42 | 41 53·1193 | 12 | 11·9672 | 42 |
| 13 | 12 57 52·2157 | 13 | 12 57·8703 | 43 | 42 52·9555 | 13 | 12·9645 | 43 |
| 14 | 13 57 42·3862 | 14 | 13 57·7064 | 44 | 43 52·7917 | 14 | 13·9618 | 44 |
| 15 | 14 57 32·5566 | 15 | 14 57·5426 | 45 | 44 52·6278 | 15 | 14·9591 | 45 |
| 16 | 15 57 22·7270 | 16 | 15 57·3788 | 46 | 45 52·4640 | 16 | 15·9563 | 46 |
| 17 | 16 57 12·8975 | 17 | 16 57·2150 | 47 | 46 52·3002 | 17 | 16·9536 | 47 |
| 18 | 17 57 3·0679 | 18 | 17 57·0511 | 48 | 47 52·1364 | 18 | 17·9509 | 48 |
| 19 | 18 56 53·2384 | 19 | 18 56·8873 | 49 | 48 51·9725 | 19 | 18·9481 | 49 |
| 20 | 19 56 43·4088 | 20 | 19 56·7235 | 50 | 49 51·8087 | 20 | 19·9454 | 50 |
| 21 | 20 56 33·5792 | 21 | 20 56·5597 | 51 | 50 51·6449 | 21 | 20·9427 | 51 |
| 22 | 21 56 23·7497 | 22 | 21 56·3958 | 52 | 51 51·4810 | 22 | 21·9399 | 52 |
| 23 | 22 56 13·9201 | 23 | 22 56·2320 | 53 | 52 51·3172 | 23 | 22·9372 | 53 |
| 24 | 23 56 4·0906 | 24 | 23 56·0682 | 54 | 53 51·1534 | 24 | 23·9345 | 54 |
| | | 25 | 24 55·9044 | 55 | 54 50·9896 | 25 | 24·9318 | 55 |
| | | 26 | 25 55·7405 | 56 | 55 50·8257 | 26 | 25·9290 | 56 |
| | | 27 | 26 55·5767 | 57 | 56 50·6619 | 27 | 26·9263 | 57 |
| | | 28 | 27 55·4129 | 58 | 57 50·4981 | 28 | 27·9236 | 58 |
| | | 29 | 28 55·2490 | 59 | 58 50·3343 | 29 | 28·9208 | 59 |
| | | 30 | 29 55·0852 | 60 | 59 50·1704 | 30 | 29·9181 | 60 |

| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| 0·16954 | [illegible] | [illegible] | [illegible] | [illegible] |
| 0·17951 | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | 0·52 | [illegible] | [illegible] | [illegible] |
| 0·19945 | 0·53 | [illegible] | [illegible] | [illegible] |
| 0·20943 | 0·54 | [illegible] | [illegible] | [illegible] |
| 0·21940 | 0·55 | [illegible] | [illegible] | [illegible] |
| 0·22937 | 0·56 | [illegible] | [illegible] | [illegible] |
| 0·23934 | 0·57 | [illegible] | [illegible] | [illegible] |
| 0·24932 | 0·58 | [illegible] | [illegible] | [illegible] |
| 0·25929 | 0·59 | [illegible] | [illegible] | [illegible] |
| 0·26926 | 0·60 | [illegible] | [illegible] | [illegible] |
| 0·27924 | 0·61 | 0·60633 | [illegible] | [illegible] |
| 0·28921 | 0·62 | 0·61631 | 0·95 | [illegible] |
| 0·29918 | 0·63 | 0·62629 | 0·96 | [illegible] |
| 0·30915 | 0·64 | 0·63625 | 0·97 | [illegible] |
| 0·31913 | 0·65 | 0·64623 | 0·98 | [illegible] |
| 0·32910 | 0·66 | 0·65620 | 0·99 | [illegible] |

## LATITUDES AND LONGITUDES OF THE PRINCIPAL OBSERVATORIES.

The Longitudes are reckoned from the Meridian of Greenwich.
*North* Latitudes and *West* Longitudes are indicated by the sign +:
*South* Latitudes and *East* Longitudes by the sign —.

| | | | |
|---|---|---|---|
| ABERDEEN - - - - | (Marischal College.) | | |
| | Lat. | + 57° 8′ 57″·8 | Mr. George Innes, |
| | Long. | + 0ʰ 8ᵐ 22ˢ·78 | *Ast. Nach.* vol. x. page 211. |
| ABO - - - - - - | Lat. | + 60° 26′ 57″ | *Argelander's Observations*, v page 21, and vol. ii. pages 25, |
| | Long. | — 1ʰ 29ᵐ 8ˢ·8 | *Ast. Nach.* vol. ix. page 264. |
| ALTONA - - - - | (Prof. Schumacher.) | | |
| | Lat. | + 53° 32′ 45″ | *Gauss on the Latitudes of Göt gen and Altona*, page 71. (Göttingen, 18 |
| | Long. | — 0ʰ 39ᵐ 46ˢ·6 | *Ast. Nach.* vol. viii. page 132. |
| ARMAGH - - - - - | Lat. | + 54° 21′ 12″·7 | Communicated by the Rev. |
| | Long. | + 0ʰ 26ᵐ 35ˢ·5 | Robinson. |
| BEDFORD - - - - | (Capt. Smyth, R.N.) | | |
| | Lat. | + 52° 8′ 27″·6 | *Mem. Ast. Soc.* vol. v. page 3 |
| | Long. | + 0ʰ 1ᵐ 51ˢ·97 | |
| BERLIN - - - - - | Lat. | + 52° 31′ 13″·5 | *Berliner Astron. Jahrbuch* |
| | Long. | — 0ʰ 53ᵐ 35ˢ·5 | 1833, page 249. |
| BREMEN - - - - - | (Dr. Olbers.) | | |
| | Lat. | + 53° 4′ 36″ | *Ast. Nach.* vol. i. page 240. |
| | Long. | — 0ʰ 35ᵐ 15ˢ·9 | This is the mean of the res given in *Ast. Nach.* vol. i. page 240; vol. iv. p 392; vol. v. page 247; vol. viii. pages 131 and 2 |
| BRUSSELS - - - - | (Prof. Quetelet.) | | |
| | Lat. | + 50° 51′ 10″·7 | *Annuaire de l'observatoire* |
| | Long. | — 0ʰ 17ᵐ 29ˢ·0 | *Bruxelles, pour l'An* 1837 pages 264 and |
| BUDA - - - - - - | (Ofen.) | | |
| | Lat. | + 47° 29′ 12″·2 | *Zeitschrift für Astronomie*, vol page 70; and *Mem. Ast. Soc.* vol. i. page 28 |
| | Long. | — 1ʰ 16ᵐ 12ˢ·7 | *Zach's Correspond. Astron.* vol page 263; and *Zeitschrift für Astronomie*, vo page 507. |
| BUSHEY HEATH - - | (Colonel Beaufoy.) | | |
| | Lat. | + 51° 37′ 44″·3 | *Mem. Ast. Soc.* vol. ii. page 1 |
| | Long. | + 0ʰ 1ᵐ 20ˢ·93 | |

## LATITUDES AND LONGITUDES OF THE PRINCIPAL OBSERVATORIES.

| | | | |
|---|---|---|---|
| CAMBRIDGE - - - | Lat. | + 52° 12′ 51″·8 | *Camb. Phil. Trans.* vol. v. p. 279. |
| | Long. | — 0ʰ 0ᵐ 23ˢ·54 | *Camb. Phil. Trans.* vol. iii. p. 168. |
| CAPE OF GOOD HOPE - | Lat. | — 33° 56′ 3″ | *Mem. Roy. Ast. Soc.* vol. vi. page 130. |
| | Long. | — 1ʰ 13ᵐ 55ˢ·0 | Communicated by Mr. Henderson. |
| CHRISTIANA - - - | Lat. | + 59° 54′ 5″ | *Ast. Nach.* vol. vi. page 148. |
| | Long. | — 0ʰ 42ᵐ 59ˢ·8 | *Ast. Nach.* vol. v. page 382. |
| COPENHAGEN - - - | (University.) | | |
| | Lat. | + 55° 40′ 53″ | *Ast. Nach.* vol. v. page 366. |
| | Long. | — 0ʰ 50ᵐ 19ˢ·8 | *Ast. Nach.* vol. ix. page 164. |
| CRACOW - - - - | Lat. | + 50° 3′ 49″·7 | *Ast. Nach.* vol. viii. page 176; and vol. x. page 228. |
| | Long. | — 1ʰ 19ᵐ 52ˢ·45 | *Ast. Nach.* vol. x. page 232. |
| DORPAT - - - - | Lat. | + 58° 22′ 47″ | *Struve's Astronom. Observations*, vol. vi. page 60. |
| | Long. | — 1ʰ 46ᵐ 55ˢ | *Bessel's Tabulæ Regiomontanæ*, page 2. |
| DUBLIN - - - - | Lat. | + 53° 23′ 13″ | *Ast. Nach.* vol. x. page 274. |
| | Long. | + 0ʰ 25ᵐ 22ˢ | |
| EDINBURGH - - - | Lat. | + 55° 57′ 20″ | *Mem. Ast. Soc.* vol. iv. page 568. |
| | Long. | + 0ʰ 12ᵐ 43ˢ·6 | |
| FLORENCE - - - - | (St. Giovanni.) | | |
| | Lat. | + 43° 46′ 41″·4 | *Zach's Correspondance Astronomique*, vol. i. pages 1 to 14. |
| | Long. | — 0ʰ 45ᵐ 3ˢ·6 | |
| GENEVA - - - - | Lat. | + 46° 11′ 59″·4 | *Mémoire sur une nouvelle détermination sur la Latitude de Genève.* By M. Gautier. (Genève, 1830.) |
| | Long. | — 0ʰ 24ᵐ 37ˢ·5 | *Ast. Nach.* vol. viii. page 260. |
| GOTHA - - - - - | (Seeberg.) | | |
| | Lat. | + 50° 56′ 5″ | *Gauss on the Latitudes of Göttingen and Altona*, page 80. |
| | Long. | — 0ʰ 42ᵐ 56ˢ·4 | *Bessel's Tab. Reg.* page 2. |
| GÖTTINGEN - - - | Lat. | + 51° 31′ 48″ | *Gauss on the Latitudes of Göttingen and Altona*, page 71. |
| | Long. | — 0ʰ 39ᵐ 46ˢ·5 | *Bessel's Tab. Reg.* page 2. |
| GREENWICH - - - | Lat. | + 51° 28′ 39″·0 | *Mem. Ast. Soc.* vol. ii. pages 318 and 529. |
| | Long. | 0ʰ 0ᵐ 0ˢ | |

## LATITUDES AND LONGITUDES OF THE PRINCIPAL OBSERVATORIES.

| | | |
|---|---|---|
| KENSINGTON - - - | (Sir James South.) | |
| | Lat. + 51° 30′ 12″·7 | *Mem. Ast. Soc.* vol. v. page |
| | Long. + 0ʰ 0ᵐ 46ˢ·78 | |
| KEW - - - - - - | Lat. + 51° 28′ 37″ | *Baily's Astron. Tables and* |
| | Long. + 0ʰ 1ᵐ 3ˢ | *mulæ*, page 123. (London, |
| KÖNIGSBERG - - - | Lat. + 54° 42′ 50″ | *Introduction to Bessel's A* |
| | | *Observations for* 1821. |
| | Long. — 1ʰ 22ᵐ 0ˢ·5 | *Bessel's Tab. Reg.* page 2. |
| KREMSMUNSTER - - | Lat. + 48° 3′ 29″ | *Ast. Nach.* vol. vi. page 67. |
| | Long. — 0ʰ 56ᵐ 32ˢ·3 | *Ast. Nach.* vol. iii. page 121. |
| MADRAS - - - - - | Lat. + 13° 4′ 9″·2 | *Taylor's Result of Ast. Ob* |
| | Long. — 5ʰ 21ᵐ 3ˢ·77 | *the Observatory*, vol. i. 1 |
| | | pages 94 & 95. (Madras, 1 |
| MAKERSTOUN - - - | (Sir T. M. Brisbane.) | |
| | Lat. + 55° 34′ 45″ | *Ast. Nach.* vol. x. page 214. |
| | Long. + 0ʰ 10ᵐ 4ˢ·0 | |
| MANHEIM - - - - - | Lat. + 49° 29′ 14″ | *Zach's Correspondance Astr* |
| | | *mique*, vol. i. page 193. |
| | Long. — 0ʰ 33ᵐ 51ˢ·4 | *Ast. Nach.* vol. ii. page 398. |
| MARSEILLES - - - | Lat. + 43° 17′ 50″·1 | *Zach's Attraction des Monta* |
| | | vol. ii. page 591. |
| | Long. — 0ʰ 21ᵐ 29ˢ·0 | *Ast. Nach.* vol. iv. page 36. |
| MILAN - - - - - - | (Brera.) | |
| | Lat. + 45° 28′ 1″ | *Zach's Correspondance Astr* |
| | | *mique*, vol. v. page 300. |
| | Long. — 0ʰ 36ᵐ 47ˢ·2 | *Ast. Nach.* vol. ix. page 312. |
| MODENA - - - - - | Lat. + 44° 38′ 53″ | *Effem. Astron. di Milano* for 1 |
| | Long. — 0ʰ 43ᵐ 43ˢ·2 | pages 94 and 60. |
| MUNICH - - - - - | (Bogenhausen.) | |
| | Lat. + 48° 8′ 45″ | *Ast. Nach.* vol. i. page 221. |
| | Long. — 0ʰ 46ᵐ 26ˢ·5 | *Ast. Nach.* vol. viii. page 148. |
| NAPLES - - - - - | (Capo di Monte.) | |
| | Lat. + 40° 51′ 46″·6 | *Ast. Nach.* vol. v. page 294. |
| | Long. — 0ʰ 57ᵐ 0ˢ·3 | Communicated by M. Caccia |
| | | to Captain B. Hall, R.N. |
| NICOLÆFF - - - - | Lat. + 46° 58′ 20″·6 | *Ast. Nach.* vol. vii. page 261. |
| | Long. — 2ʰ 7ᵐ 55ˢ·1 | *Ast. Nach.* vol. vii. page 306. |
| ORMSKIRK - - - - | (Rev. W. R. Dawes.) | |
| | Lat. + 53° 34′ 18″ | *Mem. Ast. Soc.* vol. v. page 37 |
| | Long. + 0ʰ 11ᵐ 36ˢ | |

## LATITUDES AND LONGITUDES OF THE PRINCIPAL OBSERVATORIES.

| | | |
|---|---|---|
| ORD - - - - - | Lat. + 51° 45′ 40″<br>Long. + 0ʰ 5ᵐ 1ˢ·5 | *Requisite Tables*, 3rd edit. (from Trig. Survey.) |
| UA - - - - - - | Lat. + 45° 24′ 2″<br>Long. — 0ʰ 47ᵐ 29ˢ·2 | *Ast. Nach.* vol. v. page 411.<br>*Ast. Nach.* vol. iv. page 347. |
| ERMO - - - - - | Lat. + 38° 6′ 44″<br>Long. — 0ʰ 53ᵐ 25ˢ·6 | *Cacciatore*, in Books 7 and 8 of *Palermo Observations.*<br>Communicated by M. Cacciatore to Captain B. Hall, R.N. |
| AMATTA - - - - | Lat. — 33° 48′ 49″·8<br>Long. — 10ʰ 4ᵐ 6ˢ·25 | *Phil. Trans.* for 1829. Part iii. pages 16 and 29. |
| IS - - - - - - | Lat. + 48° 50′ 13″<br>Long. — 0ʰ 9ᵐ 21ˢ·5 | *Conn. des Tems* for 1835, page 356.<br>*Phil. Trans.* for 1827. (*Henderson on the Longitudes of Greenwich and Paris.*) |
| ERSBURGH - - - | Lat. + 59° 56′ 31″<br>Long. — 2ʰ 1ᵐ 15ˢ·8 | *Conn. des Tems* for 1836, page 340.<br>*Ast. Nach.* vol. viii. page 360. |
| TSMOUTH - - - | Lat. + 50° 48′ 3″<br>Long. + 0ʰ 4ᵐ 23ˢ·9 | *Requisite Tables*, 3rd edit. (from Trig. Survey.) |
| GUE - - - - - | Lat. + 50° 5′ 18″·5<br>Long. — 0ʰ 57ᵐ 41ˢ·9 | *Ast. Nach.* vol. viii. page 198.<br>*Ast. Nach.* vol. iii. page 264. |
| E - - - - - - | (Roman College.)<br>Lat. + 41° 53′ 52″<br>Long. — 0ʰ 49ᵐ 54ˢ·7 | *Conn. des Tems* for 1822, page 312.<br>*Ast. Nach.* vol. viii. page 88. |
| FERNANDO, near CADIZ - - - | Lat. + 36° 27′ 45″ or 42″<br>Long. + 0ʰ 24ᵐ 49ˢ·1 | *Zach's Correspondance Astronomique*, vol. xiv. pages 240 to 243.<br>*Ast. Nach.* vol. ix. page 358. |
| HELENA - - - | Lat. — 15° 55′ 26″<br>Long. + 0ʰ 22ᵐ 50ˢ | Communicated by Lieut. Johnson. |
| GH - - - - - | (Sir J. F. W. Herschel.)<br>Lat. + 51° 30′ 20″<br>Long. + 0ʰ 2ᵐ 24ˢ | *Baily's Astron. Tables and Formulæ*, p.124. (London, 1827.) |
| H KILWORTH - | (Rev. W. Pearson.)<br>Lat. + 52° 25′ 51″<br>Long. + 0ʰ 4ᵐ 26ˢ·0 | *Pearson's Astronomy*, vol. ii. page 707. |
| ER - - - - - | Lat. + 49° 18′ 55″·2<br>Long. — 0ʰ 33ᵐ 46ˢ·5 | *Schwerd's Observations.* Part i. page xx.<br>*Ast. Nach.* vol. iii. page 46. |

## LATITUDES AND LONGITUDES OF THE PRINCIPAL OBSERVATORIES.

| | | | |
|---|---|---|---|
| STRASBURGH - - - - | Lat. | + 48° 34′ 40″ | *Comptes Rendus Hebdo* |
| | Long. | — 0ʰ 31ᵐ 0ˢ·8 | *des Séances de L'Acad* |
| | | | *Sciences.* 2nd Semestre. 1836, |
| TURIN - - - - - | (New Observatory.) | | |
| | Lat. | + 45° 4′ 6″ | Communicated by M. |
| | Long. | — 0ʰ 30ᵐ 48ˢ·4 | Captain B. Hall, R.N |
| VERONA - - - - - | (Lyceum.) | | |
| | Lat. | + 45° 26′ | (Approximate.) |
| | Long. | — 0ʰ 44ᵐ 0ˢ·1 | *Effem. Astron. di Milano* page 60. |
| VIENNA - - - - - | Lat. | + 48° 12′ 35″ | *Littrow's Astron. Obse* Part viii. page 124. |
| | Long. | — 1ʰ 5ᵐ 31ˢ·9 | *Ast. Nach.* vol. iii. page |
| VIVIERS - - - - - | (M. Flaugergues.) | | |
| | Lat. | + 44° 29′ 11″ | *Zach's Correspondance mique*, vol. ii. page 13 |
| | Long. | — 0ʰ 18ᵐ 44ˢ·8 | *Ast. Nach.* vol. v. page 2 |
| WILNA - - - - - | Lat. | + 54° 41′ 0″ | *Ast. Nach.* vol. iv. page |
| | Long. | — 1ʰ 41ᵐ 11ˢ·9 | *Ast. Nach.* vol. viii. page |

# EXPLANATION OF THE ARTICLES

CONTAINED IN

# THE NAUTICAL ALMANAC AND ASTRONOMICAL EPHEMERIS

## FOR THE YEAR 1839.

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ALL the articles of the Ephemeris have been computed for Greenwich MEAN solar time; and where they are given for apparent solar or sidereal time, it has been chiefly for the convenience of astronomers. A *day* is the interval of time between the departure of any meridian from a heavenly body and its succeeding return to it, and derives its name from the body with which the motion of the meridian is compared. The interval between the departure and return of a meridian to the Sun is called a *solar* day; in the case of the Moon, the interval is called a *lunar* day; and in that of a Star, a *sidereal* day. The revolution of the Earth on its axis is always performed in the same time; and if the heavenly bodies preserved the same positions with respect to each other, the intervals between the departure and return of a meridian to each would be the same, and all days, consequently, of equal length. The Sun, (or, more strictly, the Earth in its orbit,) the Moon, and the Planets are, however, in continual motion; and with velocities not only different from each other, but varying in each particular body: the length of a day, as determined by any of these bodies, is therefore a variable quantity.

Astronomers, with the view of obtaining a convenient and uniform measure of time, have recourse to a *mean solar day*, the length of which is equal to the mean or average of all the apparent solar days in a year. An imaginary Sun, called the *mean* Sun, is conceived to move uniformly in the Equator with the real Sun's *mean* motion in Right Ascension, and the interval between the departure of any meridian from the *mean* Sun and its succeeding return to it is the duration of the mean solar day. Clocks and Chronometers are adjusted to mean solar time; so that a complete revolution (through 24 hours) of the hour hand of one of these machines should be performed in exactly the same interval as the revolution of the Earth on its axis with respect to the mean Sun. If the mean Sun could be observed on the meridian at the instant that the clock or chronometer indicated $0^h\ 0^m\ 0^s$, it would again be observed there when the hour hand returned to the same position. As the time deduced from observations of the *true* Sun is called *true* or *apparent* time, so the time deduced from the *mean* Sun, or indicated by the machines which represent its motion, is denominated *mean* time.

We cannot *immediately* obtain mean time from observation; but, from an observation of the true Sun, with the aid of the equation of time, which is the angular distance in time between the mean and the true Sun, we may readily deduce it. Suppose the true Sun to be observed on the meridian of Greenwich, Jan. 1, 1839; it would then be apparent noon at that meridian; the equation of time at this instant is $3^m\ 43^s{\cdot}29$, and, by the precept at the head of the column, it is "to be added to

*apparent time"*; hence it appears that the corresponding mean time is $0^h\ 3^m\ 43^s{\cdot}3$, that the mean Sun had passed the meridian previously to the true Sun, and that the instant of observation the mean time clock or chronometer ought to indicate this time.

A mere inspection of the columns of the Ephemeris is, of itself, sufficient to show that the quantities are continually varying, and that some reduction is necessary where data are to be obtained for any time differing from that for which the quantities are registered. Take, for instance, the Sun's Right Ascension on Page 2 of the month of January; on January 1, it is $18^h\ 45^m\ 31^s{\cdot}83$; on January 2, it is $18^h\ 49^m\ 56^s{\cdot}61$; in the course of 24 mean hours it has therefore increased by $4^m\ 24^s{\cdot}78$. If, then, the Right Ascension were required for any time between the Mean Noons of January 1 and 2, as at $6^h$ from Mean Noon of January 1, it would be necessary to increase the Right Ascension on January 1, by the proportional part of the daily increase due for the $6^h$, viz. by one-fourth part, or $1^m\ 6^s{\cdot}20$. This would in all cases be required, even under the meridian of Greenwich, for which the quantities have been specially computed. Let a person be now supposed to be under a meridian 15° West of Greenwich. The positions of the heavenly bodies, as referred to the centre of the Earth, are independent of meridians, and are the same for all places at the same absolute instant; but the relative times at Greenwich and the assumed meridian would be different. If it were $1^h$ from mean noon at the one place, it could not be $1^h$ from mean noon at the other; for when we speak of time, we mean, as regards a visible phenomenon, the distance of the Sun *westward* from a given meridian, and at the same absolute moment of time the Sun *cannot* be at the same distance (*reckoning westward*) from two meridians which are 15° distant from each other. Before we can make use of the Ephemeris, it is therefore necessary to ascertain, in every instance, the distance of the Sun (*in time*) from the meridian of Greenwich, or what is commonly called the corresponding Greenwich time; and this is evidently equal to the given time under the assumed meridian, *increased* or *diminished* by the difference (*in time*) of the two meridians, according as the assumed meridian is to the *Westward* or *Eastward* of Greenwich. In a mean Solar day, or 24 mean Solar hours, the Earth, by its rotation from West to East, has caused every meridian in succession from East to West to pass the mean Sun; and since the motion is uniform, all the meridians distant from each other 15° will have passed the mean Sun, at intervals of one mean hour; the meridian to the Eastward passing first, or being, as compared with the Sun, always one mean hour in advance of the Westerly meridian. When it is $6^h$ from mean noon at a place 15° West of Greenwich, it is therefore $7^h$ from mean noon at Greenwich; and it is for this Greenwich time that we must deduce the quantities required from the Ephemeris.

If a chronometer adjusted to Greenwich mean time be at hand, the Greenwich time may be immediately obtained by applying a correction, deduced from the daily rate and interval elapsed, and this will be preferable in all cases for obtaining the requisite data from the Ephemeris.

The day adopted in this Ephemeris is supposed to begin at mean noon, or at the instant when a clock or chronometer shows $0^h\ 0^m\ 0^s$, Greenwich mean time, and is continued through the 24 hours, to the following mean noon, when another day begins. It may therefore be called the *Mean Astronomical Day*, although, in practice, astronomers begin the day at the moment the true Sun's centre is on their meridian.

In the civil, or common, method of reckoning, the day is supposed to commence at the *preceding* midnight, and to be counted only to 12 hours or noon, when the 12 hours are reckoned over again to the next midnight. The civil reckoning is therefore always $12^h$ in advance of the astronomical reckoning: and the civil time corresponding

to any given astronomical time is hence readily found by *adding* $12^h$ to the latter: thus, if to Jan. $1^d$ $7^h$ $49^m$, astronomical time, be added $12^h$, the sum will be Jan. $1^d$ $19^h$ $49^m$, or Jan. $1^d$ $7^h$ $49^m$ P.M. civil time. Again, to Jan. $1^d$ $15^h$ $35^m$, astronomical time, add $12^h$; the sum will be Jan. $2^d$ $3^h$ $35^m$ A.M. civil time. It thus appears that, from noon to midnight, the day of the month and the hour of the day are the same in both methods; but from midnight to noon they differ; for at midnight, when a new civil day commences, the astronomical day wants $12^h$ of its completion.

The conversion of civil into astronomical time is on the contrary performed by *diminishing* the former by $12^h$. Thus, January $2^d$ $3^h$ $35^m$ A.M. civil time, diminished by $12^h$, leaves January $1^d$ $15^h$ $35^m$, for the corresponding astronomical time.

To each month there are devoted twenty-two pages, distinguished by the Roman numerals I. to XXII.

For convenience of interpolation, the quantities that follow next in order of succession have been added at the bottom of each page. Thus the quantities opposite to February 1 will be found inserted also opposite to January 32, the number of the days in each month having been intentionally increased for such purpose.

Page I. of each Month.

The contents of this page are adapted to *Apparent Noon*, or the instant when the Sun's centre is on the meridian of Greenwich. The *Sun's Right Ascension*, here given, is *affected with Aberration*, and reckoned from the true Equinox; it is therefore the Sidereal Time at Apparent Noon, or the time which ought to be shown by a Sidereal Clock, at that instant. The *Sun's Apparent Declination* is the angular distance of the Sun from the Equator, measured on the meridian.

The columns entitled "Diff. for 1 hour" are intended to facilitate the reduction of the quantities from Apparent Noon to any other time. The values of these quantities for any proposed *mean* time will, however, be more accurately ascertained by means of the numbers on page II., from which, indeed, they have been derived.

The *Sidereal Time of the Sun's Semidiameter passing the Meridian* is useful for reducing a transit observation of either limb of the Sun, when one only has been observed, to the transit of the centre.

The *Equation of Time* is the difference between Apparent and Mean Time, and therefore serves for the conversion of either time into the other. The numbers here given, show, for Greenwich Apparent Noon, the distance of the mean Sun from the meridian, or the portion of time to be *added to*, or *subtracted from*, (according to the precept at the head of the column,) Greenwich Apparent Noon to obtain the corresponding Mean Time at the same meridian, or the time which ought to be shown by the Mean Time Clock. It differs from the Equation of Time on page II., because the equation itself varies in the interval between Apparent and Mean Noon.

Where time is deduced from observations of the Sun, the *immediate* result is *apparent* time; to convert it into mean time, the equation of time is necessary, and it is to be applied to apparent time, according to the precept at the head of the column.

Thus, suppose the apparent time deduced from an observation of the Sun on January 16, 1839, in longitude 45° or $3^h$ east of Greenwich, to be $6^h$, and it were required to convert it into mean time: Subtracting the difference of longitude $3^h$ from the apparent time at the place, we have $3^h$ for the corresponding apparent time at Greenwich. The difference of the equation for 1 hour is $0^s{\cdot}850$, which, multiplied by

3, gives $2^s \cdot 550$ for the variation in 3 hours, and this being added (because the equation is increasing) to $9^m\ 59^s \cdot 35$, the equation of time at apparent noon, the result is $10^m\ 1^s \cdot 90$, to be added (according to the precept at the head of the column) to the given apparent time $6^h$, whence we obtain $6^h\ 10^m\ 1^s \cdot 90$, for the mean time required.

At page I. of the month of April, we observe, at the head of the column, $\frac{\textit{added to}}{\textit{subt. from}}$, which signifies that a change of precept occurs in the course of the month; and between the equations opposite to the 15th and 16th days of the month, a black line, indicating that the change occurs between the Mean Noons of those days. The upper precept applies to all the quantities above the black line; and the lower precept to all the quantities below it: that is, in the instance referred to, the Equation of Time is to be *added to* Apparent Time from the 1st of April to the instant at which the equation becomes $0^m\ 0^s$, which happens between the noons of the 15th and 16th days of the month; but after that instant the equation is to be *subtracted* from Apparent to obtain Mean Time.

## Page II. of each Month.

The *Sun's Apparent Right Ascension* and *Declination* at mean noon have been deduced from its *Apparent* longitude and latitude given at page III., and the *apparent* obliquity of the ecliptic at page 266. They denote the *apparent* position of the true Sun with reference to the equator, and the true equinox, at the instant the Greenwich mean time clock, or chronometer, indicates $0^h\ 0^m\ 0^s$, or when the hour angle of the true Sun is equal to the equation of time.

To find the Right Ascension and Declination for any other mean time and place, as at $9^h\ 20^m$ A.M. March 2, 1839, in longitude 98°, or $6^h\ 32^m$, West of Greenwich. The astronomical time, corresponding to $9^h\ 20^m$ A.M. March 2, is $21^h\ 20^m$ from the noon of March 1, or March $1^d\ 21^h\ 20^m$, agreeably to what has been said before. The longitude, being West of Greenwich, must be added to March $1^d\ 21^h\ 20^m$, and the result, March $2^d\ 3^h\ 52^m$, is the corresponding Greenwich mean time, for which the Right Ascension and Declination are to be found. The difference between the Right Ascensions on March 2 and March 3 is $3^m\ 43^s \cdot 96$, that is, in the 24 mean hours succeeding the Mean Noon of March 2, the Right Ascension has increased by this quantity; it will, therefore, have received a proportional part of the increase in $3^h\ 52^m$, and the amount is readily obtained by this proportion, $24^h : 3^m\ 43^s \cdot 96 :: 3^h\ 52^m : 36^s \cdot 08$; which, being *added* to $22^h\ 50^m\ 51^s \cdot 33$, the Right Ascension at Mean Noon of March 2, gives $22^h\ 51^m\ 27^s \cdot 41$, for the Right Ascension at the time proposed.

In a similar manner the Declinations indicate a decrease of $22'\ 53'' \cdot 9$ in the 24 hours; therefore $24^h : 22'\ 53'' \cdot 9 :: 3^h\ 52^m : 3'\ 41'' \cdot 4$, the proportional part of the decrease for $3^h\ 52^m$, which, *subtracted* from S. 7° 20′ 56″·9, leaves S. 7° 17′ 15″·5, for the Declination required.

The *Semidiameter of the Sun.* The numbers in this column express the angle at the centre of the earth subtended by the Sun's Semidiameter, and are required for reducing observations of the limb to the centre, as in the instance of measuring the altitude of the Sun's upper or lower limb, or the distance of the Moon from the Sun.

*Equation of Time.* The numbers in this column are the values of the equation at the instant of Mean Noon, and therefore serve more particularly to convert *Mean* into *Apparent* Time: for which purpose we have only to apply the equation according to the precept at the head of the column. Thus, if from mean noon of April 1, or

$12^h$ be subtracted the equation $4^m\ 5^s{\cdot}29$, the difference $11^h\ 55^m\ 54^s{\cdot}71$ is the corresponding apparent time. To find the equation of time at $10^h$ P.M. mean time on April 15, 1839, in longitude 62°, or $4^h\ 8^m$, West of Greenwich. Add the difference of longitude to the given time, because it is West, and the corresponding astronomical mean time at Greenwich is April $15^d\ 14^h\ 8^m$. The variation in 24 hours is $14^s{\cdot}87$, that is, the *sum* of the equations belonging to the noons of the 15th and 16th, because the equation has decreased to 0 and then increased in the interval, therefore

$$24^h : 14^s{\cdot}87 :: 14^h\ 8^m : 8^s{\cdot}76,$$

which, being greater than $0^m\ 7^s{\cdot}64$, the equation on the 15th, which was decreasing, shows that in the $14^h\ 8^m$ the equation has passed through its state of decrease to zero, or 0, and is now increasing. The difference $1^s{\cdot}12$ is the equation of time at the time proposed, and is to be added to mean time, because it has passed the zero.

*Sidereal Time at Mean Noon* is the angular distance of the First point of Aries, or the true Vernal Equinox, from the meridian, at the instant of Mean Noon: it is therefore the Right Ascension of the Mean Sun, or the time which ought to be shown by a Sidereal Clock at Greenwich, when the Mean Time Clock indicates $0^h\ 0^m\ 0^s$.

A Sidereal Clock represents the rotation of the Earth on its axis, as referred to the Stars, its hour-hand performing a complete revolution through the 24 hours in the interval between the departure of any meridian from a Star and its next return to it. At the moment that the Vernal Equinox, or a Star whose Right Ascension is $0^h\ 0^m\ 0^s$, is on the meridian of Greenwich, the Sidereal Clock ought to show $0^h\ 0^m\ 0^s$, and at the succeeding return of the Star, or the Equinox, to the same meridian, the Clock ought to indicate the same time.

The sidereal time here given is that in common use among astronomers, and expresses the actual hour-angle from the meridian, westward, of the true equinoctial point at the moment of observation. It is therefore affected by the equation of the equinoxes; and is not, strictly speaking, a *mean* or uniformly increasing quantity. It ought, therefore, to be termed *apparent sidereal time* in the same manner as apparent solar time reckons from the actual arrival of the sun's centre on the meridian; and in like manner, as mean solar time is reckoned from the arrival of an imaginary sun, moving uniformly with its mean velocity, so *mean sidereal* time (whose expression would be simply $\frac{\odot\text{'s mean longitude}}{15}$) would be reckoned from the transit of, not the *true*, but the *mean* equinoctial point. The smallness of the fluctuations to which a clock, regulated to *apparent* sidereal time compared with one regulated to *mean* sidereal time, is subject, being at the utmost only $2^s{\cdot}3$ in a period of nineteen years, has prevented the practical inconvenience of this from being felt: no clock being sufficiently perfect to go during so long a period without frequent re-adjusting; and as the corrections applied by astronomers to the observed right ascensions of all objects are adapted to this supposed irregularity in the rate of the clock, the mean right ascensions thence deduced come out correct. It has, therefore, not been thought necessary, in this instance, to depart from received usage, however theoretically objectionable such a mode of counting time may appear, since a change in this respect would involve the necessity of a corresponding change in all tables of nutation.

The Sidereal time at Mean Noon is useful in all cases where mean solar time is to be deduced from observations of the heavenly bodies. It serves to facilitate the reduction of sidereal to mean solar time, and *vice versâ*, by the help of the tables commonly used for that purpose, called a Table of Acceleration of Sidereal on Mean

Solar Time, and the corresponding Table of Retardation of Mean on Sidereal Time, according to the following rule:—Convert the interval from the mean noon immediately preceding, from the denomination given, to that required; and if mean time be required, the result will at once be that which the clock should show; but if sidereal time be that sought, the result must be added to the sidereal time at the preceding mean noon.

*Example*:—To convert $21^h\ 9^m\ 24^s{\cdot}04$ sidereal time, Jan. 2, 1839, into mean solar time, for the meridian of Greenwich.

| | h | m | s |
|---|---|---|---|
| Sidereal time given - - - - - - - - - - - - - | 21 | 9 | 24 ·04 |
| Sidereal time *at* mean noon, January 2 - - - - - - | 18 | 45 | 45 ·17 |
| Interval in sidereal time *from* mean noon - - - - - - | 2 | 23 | 38 ·87 |
| Retardation of mean on sidereal time for the interval - | | — | 23 ·53 |
| Mean solar time required - - - - - - - - - - - | 2 | 23 | 15 ·34 |

which is the interval elapsed since mean noon, expressed in mean time; and therefore the time which ought to be shown by a mean time clock.

*Vice versâ*, to convert $2^h\ 23^m\ 15^s{\cdot}34$ mean solar time, January 2, 1839, into sidereal time for the same meridian.

| | h | m | s |
|---|---|---|---|
| Mean interval from mean noon, January 2 - - - - - | 2 | 23 | 15 ·34 |
| Acceleration of sidereal on mean time for the interval - | | + | 23 ·53 |
| Sidereal interval *from* mean noon - - - - - - - - | 2 | 23 | 38 ·87 |
| Sidereal time *at* mean noon, January 2 - - - - - - | 18 | 45 | 45 ·17 |
| Sidereal time required - - - - - - - - - - - - - | 21 | 9 | 24 ·04 |

which ought to be the time shown by the sidereal clock at the instant in question.

If the place of observation be not on the meridian of Greenwich, the sidereal time must be corrected by the *addition* of $9^s{\cdot}8565$ for each hour (and proportional parts for the minutes and seconds) of longitude, if the place be to the west of Greenwich; but by its *subtraction*, if to the east. Thus, in $9^h\ 10^m\ 6^s$ west longitude, the sidereal time at mean noon, January 2, instead of being, as in the foregoing Example, $18^h\ 45^m\ 45^s{\cdot}17$, must be corrected by adding $1^m\ 30^s{\cdot}34$, thus giving $18^h\ 47^m\ 15^s{\cdot}51$ for the time to be used, instead of that set down in the column.

The conversion of mean solar to sidereal time, and *vice versâ*, may, however, be performed, and with perhaps less liability to error, by means of this and of the column entitled *Mean Time of Transit of the First point of Aries*, at page XXII. of each month, using the Tables of Time Equivalents, inserted at pages 566 to 569.

To convert mean solar into sidereal time: To the sidereal time at the *preceding* mean noon add the sidereal interval corresponding to the given mean time; the sum will be the sidereal time required. (See Example at page 567.)

To convert sidereal into mean solar time: To the mean time at the *preceding* sidereal noon, add the mean interval corresponding to the given sidereal time; the sum will be the mean solar time required. (See Example at page 569.)

In this mode of reduction there is not, as in the former, by means of the Tables of Acceleration and Retardation, any distinction of cases, all the quantities being additive.

The Tables of Time Equivalents differ from the Tables of Acceleration and Retardation, in containing the *values* of intervals of each species of time, expressed in

terms of the other, instead of the *corrections*, respecting the proper application of which, a difficulty is sometimes felt by unpractised computers.

Sidereal time at mean noon is also used in finding the mean time of transit of a heavenly body.

Page III. of each Month.

The *Sun's Longitude*, here given, *is affected with aberration*, and reckoned from the *true* equinox: it is therefore the *apparent* longitude of the Sun at the instant of mean noon; or it is (if $\rho$ denote the Radius Vector) the *true* longitude of the Sun at the time $0^h - 495''\cdot775\,\rho$, because aberration causes the Sun to appear behind its true place in the Ecliptic.

The *Sun's Latitude* is the angular distance of the Sun's centre from the plane of the Ecliptic, measured on a circle perpendicular to that plane.

The *Logarithm of the Radius Vector of the Earth* is the logarithm of the distance between the centre of the Earth and the *apparent* place of the centre of the Sun at mean noon, the mean distance, or the semi-axis major of the orbit, being considered unity.

These quantities are derived *immediately* from the Solar tables, and enter into, indeed are the foundation of, nearly all the subsequent operations in the Ephemeris. Whenever the *true* longitude of the Earth is required, as in calculating the Geocentric position of a Planet or Comet from its Heliocentric position, it is necessary to reduce the *apparent* longitude of the Sun to the *true*, by correcting it for aberration. The Sun's aberration for every tenth day is given at page 266, and may thence be readily obtained for any other day of the year. (See *Sun's Aberration*, page 593.) In strictness, the *Logarithm of the Radius Vector* should also be corrected for aberration, but this is generally neglected, the correction being too small to affect the accuracy of the results in practice.

The Sun's longitude, entering into the expressions for aberration and Solar nutation, is required for the reduction of the Stars' places.

The *Moon's Semidiameter* is the angle under which her Semidiameter would appear if viewed from the centre of the Earth; and her *Horizontal Parallax* is the *greatest* angle under which the Earth's Equatorial Semidiameter would appear if seen from the centre of the Moon. The former is requisite to obtain the position of the centre from an observation of the Moon's *limb*, as in all cases of altitudes or lunar distances. The latter, for computing the horizontal parallax of the Moon at any given latitude on the Earth, *considered as a Spheroid;* also for finding the parallax in altitude, Right Ascension, &c., for the purpose of reducing an observation of the Moon made on the surface of the Earth, to what it would have been if made at the centre.

In reducing observations of the Moon made at sea, the horizontal *equatorial* parallax is generally used for finding the parallax in altitude, without regarding the previous reduction to the Spheroid; but in calculations requiring considerable precision, as in lunar occultations and solar eclipses, this reduction cannot be dispensed with.

*Example.* To find the Moon's Semidiameter and Horizontal Parallax at $6^h$ A.M. January 17, 1839, at a place 15°, or $1^h$ to the east of Greenwich. The civil time at the place, expressed in mean astronomical time, is January $16^d\ 18^h$, from which subtracting $1^h$, because the place is to the east of Greenwich, we have January $16^d\ 17^h$ for the corresponding time at Greenwich, or $5^h$ after midnight. Proceeding from the semidiameter given for midnight of the 16th, we must compute the proportional part of the variation in 12 hours due to the time elapsed since midnight, viz. $5^h$; and for ordinary purposes at sea, it will suffice simply to take this proportional part for the

correction of the registered value preceding the given time; thus the semidiameter for midnight, or $12^h$, of the 16th, is $16' \; 3''\cdot6$, and for the 17th at noon, or $24^h$, it is $16' \; 6''\cdot7$; the difference $3''\cdot1$ is the variation in 12 hours. Therefore,

$$12^h : 3''\cdot1 :: 5^h : 1''\cdot3,$$

which, *added* (because the quantities are increasing) to $16' \; 3''\cdot6$, gives $16' \; 4''\cdot9$ for the Moon's Semidiameter at the time proposed. Similarly, the Horizontal Parallax at midnight of the 16th is $58' \; 56''\cdot2$; and at the noon of the 17th it is $59' \; 7''\cdot4$; the difference $11''\cdot2$ is the variation in the 12 hours which include the given time; therefore, $12^h : 11''\cdot2 :: 5^h : 4''\cdot67$, or $4''\cdot7$, which *added* (because the quantities are increasing) to $58' \; 56''\cdot2$ gives $59' \; 0''\cdot9$ for the Horizontal Parallax required. If greater accuracy be desired, a further correction must be applied to the values just obtained, on account of second differences, to compensate the error produced by supposing the first differences uniform. But the *greatest* error in the semidiameter which can arise by this supposition in the present instance is not one-tenth of a second; for, select four semidiameters from the Ephemeris, two preceding, and two following the given time, and take the first and second differences, thus:—

| | h | ′ | ″ | ″ | ″ |
|---|---|---|---|---|---|
| January 16, | 0 | 16 | 0·1 | | |
| | | | | + 3·5 | |
| | 12 | 16 | 3·6 | | — 0·4 |
| | | | | + 3·1 | |
| 17, | 0 | 16 | 6·7 | | — 0·7 |
| | | | | + 2·4 | |
| | 12 | 16 | 9·1 | | |

The mean of the second differences is $0''\cdot55$, and $\frac{1}{8}$ of this, which is the *greatest* effect, is only $0''\cdot07$.

A similar operation performed on the Parallaxes will show the error, that would arise on the supposition of uniform or equal first differences, to be three-tenths of a second.

## Page IV. of each Month.

The *Moon's Longitude and Latitude* at Mean Noon and Midnight indicate the position of the Moon at these respective times, referred to the Ecliptic and the true Equinox, as it would be seen from the centre of the earth. They are the results deduced immediately from the Lunar Tables, and are the foundation of all subsequent calculations in which the Moon is concerned. These quantities are now of little use to the seaman, as the position of the Moon, with respect to the Equator, is given for every hour in the succeeding pages; but the Moon's Longitude is involved in the formulæ for nutation, and is therefore necessary for its determination. In finding the Moon's Longitude and Latitude for any other times than those of Mean Noon and Midnight, it is necessary to apply the equation of second, and sometimes even of third and fourth differences, on account of the irregular variation of her motion.

The *Moon's Age* at Mean Noon is the Mean Time elapsed since the Moon's ecliptic conjunction with the Sun, or since the Sun and Moon had the same Longitude. The numbers in this column represent her age at Greenwich, and are expressed in days, and decimal parts of a day.

The *Moon's Meridian Passage.*—This column contains the Greenwich Mean Time, to the nearest tenth of a minute, at which the Moon's centre is on the *upper* Meridian

of Greenwich, and is useful to indicate when the Latitude may be obtained from an observed meridian altitude of the Moon; also, in conjunction with a Table of Semi-diurnal Arcs, to determine approximately the times of the rising and setting of the Moon: it is likewise useful in finding the time of High Water.

When the symbol ( ☌ ) denoting conjunction occurs, as on January 14, we are to understand that the Moon does *not* pass the *upper* meridian on that day at Greenwich. This is the case once in every lunation, and arises from the circumstance of the Lunar day being greater than the Mean Solar day, and including it within its limits. In the present instance, the excess is $0^h\ 58^m{\cdot}8$, or the lunar day is equal to $24^h\ 58^m{\cdot}8$ Mean Solar time; the Moon passes the meridian on the 13th at $23^h\ 8^m{\cdot}0$, or $52^m{\cdot}0$ *previously* to the noon of the 14th, and does not return to the same meridian until $0^h\ 6^m{\cdot}8$ *after* the noon of the 15th. For the same reason there is also one day in every lunation on which the Moon does not transit the *lower* meridian, and this happens about the time of opposition, or when the difference of longitude of the Sun and Moon is 180°. In the list of Moon-culminating Stars, at pages 480 to 521, the days on which only one transit occurs are readily seen. On December 5th (page 518), for instance, it appears that the Moon transits the *lower* meridian only, while on the 20th (page 519), the only transit is that at the *upper* meridian.

To find the Mean Time of Transit under any other Meridian, suppose 45° or $3^h$ west of Greenwich, on January 25, 1839. The Meridian being to the west of Greenwich, the Transit will take place *after* the Greenwich time of Transit on the 25th; therefore take the difference between the Meridian Passages on the 25th and 26th, which is $0^h\ 59^m{\cdot}7$. Then, $24^h : 0^h\ 59^m{\cdot}7 :: 3^h : 7^m{\cdot}5$, which *added* to the Greenwich Mean Time of Transit gives $8^h\ 59^m{\cdot}7$ for the Mean Time of Transit at the given Meridian. Had the assumed Meridian been $3^h$ to the east of Greenwich, the Transit would have taken place *before* the Transit at Greenwich, and the proportional part of the difference between the 24th and 25th, must in this case have been *subtracted*. The times thus deduced are only approximate; but they are sufficiently accurate for the purposes usually required.

## Pages V. to XII. of each Month.

The *Moon's Right Ascension and Declination* for every hour of the day, with the *Difference of Declination for* 10 *minutes*. By means of the quantities here given, the Latitude, Time, Azimuth, Moon's rising and setting, &c., may be deduced, with nearly as little labour as is required in the case of the Sun. The numbers represent the position of the Moon, as it would appear from the centre of the Earth, with respect to the Equator and the true Equinox: and they are given for every hour, with the view of rendering any correction for second differences unnecessary, except where extreme precision is required. The Right Ascension for any time is readily obtained by simply adding the proportional part of the hourly variation due to the interval elapsed since the preceding hour. Thus, suppose the Right Ascension of the Moon were required at $8^h\ 45^m$ mean time of January 8, in longitude 60°, or $4^h$ east of Greenwich. The given time, $8^h\ 45^m$, diminished by $4^h$, gives the corresponding Greenwich time $4^h\ 45^m$. The Right Ascension at $4^h$ is $13^h\ 33^m\ 52^s{\cdot}33$, and at $5^h$ it is $13^h\ 35^m\ 41^s{\cdot}82$; the difference, $1^m\ 49^s{\cdot}49$, is the increase in the interval, or $60^m$. Hence, $60^m : 1^m\ 49^s{\cdot}49 :: 45^m : 1^m\ 22^s{\cdot}12$, which being added to the Right Ascension at $4^h$, gives $13^h\ 35^m\ 14^s{\cdot}45$ for the Right Ascension at $4^h\ 45^m$ at Greenwich, or at $8^h\ 45^m$ under the proposed meridian. To find the Declination, we make use of the number in the column headed "Diff. Dec. for $10^m$." The number in this column standi

opposite to any hour is $\frac{1}{6}$ of the difference of the Declinations at that and the following hour. We therefore say, $10^m : 129''\cdot47 :: 45^m : 582''\cdot6 = 9' \; 42''\cdot6$, which being added (because the Declinations are increasing) to S. 12° 24′ 48″·0, the Declination at $4^h$, gives S. 12° 34′ 30″·6, for the Declination at the time proposed.

The *Phases of the Moon.* These are given at page XII, to the nearest tenth of a minute. The numbers denote the Greenwich Mean Time, at which the difference of Longitude between the Sun and the Moon is 0°, 90°, 180°, or 270°, being

0° at the New Moon,
90° at the First Quarter,
180° at the Full Moon,
270° at the Last Quarter.

The Moon's *Apogee and Perigee.* The numbers here given indicate, to the nearest hour, the Greenwich Mean Time at which the Moon is respectively at her greatest and least distance from the Earth.

Pages XIII. to XVIII. of each Month.

*Lunar Distances.*—These pages contain, for every third hour of Greenwich Mean Time, the angular distances between the apparent *centres* of the Moon and certain heavenly bodies, such as they would appear to an observer at the centre of the Earth. When a Lunar Distance has been observed on the surface of the Earth, and reduced to the centre, by clearing it of the effects of parallax and refraction, the numbers in these pages enable us to ascertain the exact Greenwich mean time at which the objects would have the same distance. They are arranged, from *west* to *east*, commencing each day with the object which is at the greatest distance *westward* of the Moon, in the precise order in which they appear in the heavens; W. indicating that the object is west, and E. east, of the Moon. Thus we have at one view, by a simple reference to the date, all the lunar distances which are available for the determination of the Longitude.

The columns headed "P. L. of Diff." contain the Proportional Logarithms of the Differences of the distances at intervals of three hours, which are used in finding the Greenwich time corresponding to a given distance, according to the following rule, viz.: For the given day, seek in the Ephemeris for the *nearest* distance *preceding*, in order of time, the given distance, and take the difference between it and the given distance; from the proportional logarithm of this difference subtract the proportional logarithm standing opposite to the said *nearest* distance in the Ephemeris; the remainder will be the proportional logarithm of a portion of time to be added to the hour answering to the *nearest* distance, to obtain the approximate Greenwich mean time corresponding to the given distance.

If the distance between the Moon and a Star increased or decreased uniformly, the Greenwich time corresponding to a given distance, as found by the above rule, would be strictly correct; but an inspection of the columns of the Proportional Logarithms in the Ephemeris will show that this is not the case; and as the knowledge of the exact Greenwich time is desirable, a correction must be applied to the time so found for the variation of the differences of the distances. This correction may be obtained by means of the Table at page 562 of the present volume, in the following manner:

1. Find the Approximate interval, by the preceding rule.

2. Take the difference between the proportional logarithms standing opposite to the distances in the Ephemeris which include the given distance.

3. With the approximate interval and this difference, as arguments, take out the correction from the table.

4. If the Proportional Logarithms are *decreasing*, *add* the correction to the approximate time; but if *increasing*, *subtract* it: the result will be the accurate Greenwich mean time.

*Example* I.—Suppose it were required to find the Greenwich Mean Time, at which the *reduced* distance between the Moon and $\alpha$ Pegasi would be 39° 25′ 12″ on January 21, 1839. It appears, by inspecting the distances, that the time must be between XV$^h$ and XVIII$^h$: the *nearest* distance *preceding*, in order of time, the given distance is therefore the

| | | | |
|---|---|---|---|
| Distance at XV$^h$ - - | 38° 44′ 9″ | and P. L. - - | 3031 |
| *Reduced* Distance | - 39 25 12 | | |
| Difference - - - | 0 41 3 | - - P. L. - - | 6420 |
| Approximate Interval | - 1$^h$ 22$^m$ 29$^s$ | - - P. L. - - | 3389 |

The difference between the Proportional Logarithms in the Ephemeris, at XV$^h$ and XVIII$^h$, is 47. Opposite to 1$^h$ 22$^m$ (or the quantity nearest to it, 1$^h$ 20$^m$), and under 46, in the Table, we have for the correction 10$^s$, which, *added* to the Approximate Interval, 1$^h$ 22$^m$ 29$^s$, because the Proportional Logarithms are *decreasing*, gives 1$^h$ 22$^m$ 39$^s$, for the true interval from XV$^h$: and hence the Greenwich Mean Time is 16$^h$ 22$^m$ 39$^s$.

We see that, in the preceding Example, the omission of this correction would only produce an error of 2′·5 in the Longitude. Cases may however occur, in which it would be greater.

It will sometimes happen, that the difference of the Proportional Logarithms will exceed 88, the limit of the Table of Correction; in this case the Table may be entered with *one-half or any fraction* of the difference of the Proportional Logarithms and the Approximate Interval, and the corresponding correction *increased in like proportion.*

*Example* II.—Suppose it were required to find the Greenwich Mean Time, at which the *reduced* distance between the Moon and Aldebaran would be 16° 36′ 16″ on December 17th, 1839. By inspecting the distances, it appears that the time must be between XVIII$^h$ and XXI$^h$; therefore take the

| | | | |
|---|---|---|---|
| Distance at XVIII$^h$ - | 17° 20′ 48″ | and P. L. - - | 3175 |
| *Reduced* Distance | - 16 36 16 | | |
| Difference - - | 0 44 32 | - - P. L. - - | 6066 |
| Approximate Interval | - 1$^h$ 32$^m$ 30$^s$ | - - P. L. - - | 2891 |

The difference between the Proportional Logarithms in the Ephemeris, at XVIII$^h$ and XXI$^h$, is 293, one-fourth of which is, say, 73; under this number in the Table, and opposite that nearest the Approximate Interval, is 23$^s$: the correction is therefore 92$^s$ = 1$^m$ 32$^s$ to be *subtracted* from the Approximate Interval, because the Proportional Logarithms are *increasing*; the time at Greenwich is therefore 19$^h$ 30$^m$ 58$^s$.

The omission of the correction in the preceding example would produce an error of 23′ in Longitude; it may, however, be considered as an extreme case, and such as will seldom be met with.

The proportional logarithms also serve to point out the Star which is most favourably circumstanced for accurate observation; that Star being to be preferred which has the least Proportional Logarithm opposite to it: for, the greater the velocity of the Moon from or towards a Star, the greater is the reliance to be placed on an observation of the distance; and it is a property of Proportional Logarithms to decrease as their natural numbers increase: a smaller Proportional Logarithm, therefore, indicates a greater velocity of the Moon, or a greater variation of distance in the interval, upon which the value of the observation depends. Thus, on February 27, 1839, between *Noon* and III$^h$, Jupiter is the most eligible star, because the Proportional Logarithm, 2877, is less than that of any other; and, by inspecting the columns of Proportional Logarithms, it will appear to deserve the preference until VI$^h$ on the 28th.

On the 1st day of March, between IX$^h$ and *Midnight*, the following is the order of preference, as indicated by the Proportional Logarithms, viz., Antares, Spica ♍, Pollux, Regulus, Saturn, and Jupiter.

It is by no means to be inferred from these remarks that observations of any of the distances are to be neglected; on the contrary, every registered star should invariably be observed when an opportunity offers. If, however, on a comparison of results, a considerable difference should be discovered, the Proportional Logarithms will indicate the stars which are least liable to be affected by errors of observation, and therefore deserving of a greater degree of confidence as to the accuracy of the results obtained from them.

## Page XIX. of each Month.

### *Configurations of the Satellites of Jupiter.*

In addition to the explanation given at the foot of the page, it may be remarked, that when two Satellites are in or near conjunction, instead of the usual symbol (☌), it has been thought better to place one above the other, without regard to their actual latitudes, but merely to distinguish them in their relation of *upper* and *lower*.

The Satellites are in the superior parts of their orbits, or have Jupiter between them and the Earth, when they are moving from West to East, or towards the right-hand of the page; but they are in the inferior parts of their orbits, or between the Earth and Jupiter, when they are moving from East to West, or towards the left-hand: in the former case Eclipses and Occultations occur, and in the latter Transits of the Satellites and their Shadows.

If an inverting telescope be directed towards Jupiter on March 4, 1839, at 13$^h$ Mean Time, the Satellites will appear to an observer at Greenwich in the positions as laid down in the Table. The 1st Satellite, which is *really* to the left of the Planet, will appear to the right of it; and the 2nd, 3rd, and 4th, which are *really* to the right, will appear to be to the left.

*West* and *East*, at the head of the page, are inserted to show the positions of the Satellites with respect to Jupiter, as they would appear in a telescope that does *not* invert. Jupiter being always to the South of the zenith of Greenwich, the Satellites which are here laid down on the left of Jupiter would appear to the *West*, and those on the right-hand to the *East* of the planet.

As regards their positions to the east or west, the page viewed directly, exhibits the Satellites in an inverted order; but if the leaf be turned over, and the page viewed from the other side, they will appear in their real positions. The simplest mode of changing the position of a Satellite from apparent to real, and *vice versâ*, is to draw a line from the Satellite through Jupiter's centre, and to place the Satellite upon this line at the same distance from the centre as before, only on the opposite side. If this operation be performed upon the Configurations as laid down in this volume, the Satellites will be reduced to their real positions.

As the Configurations are given for *Mean Astronomical time*, which agrees with *Civil time* only from $0^h$ to $12^h$, or from noon to midnight, when the time exceeds $12^h$ the excess will indicate the Civil time of the succeeding day of the month.

Thus in November, 1839, the Configurations are given for $18^h\ 25^m$ mean time, but the 18th hour from noon is the same as the 6th hour from the following midnight, when a new Civil day has commenced. The appearances, therefore, relate to $6^h\ 25^m$ A.M. of the day following, according to the common mode of reckoning time; that is, the Configurations at $18^h\ 25^m$ on November the 26th relate to $6^h\ 25^m$ A.M. on November the 27th.

The Configurations enable an observer to distinguish the Satellites from each other, and from Stars in the vicinity of Jupiter.

Page XX. of each Month.

*Eclipses of the Satellites of Jupiter.*

On this page are given the Mean and Sidereal Times of the Eclipses of the Satellites, together with diagrams exhibiting the position of each Satellite with respect to the disc of the Planet at the moment of Immersion or Emersion, as it will appear in an inverting telescope. These diagrams have been laid down from calculations made for the eclipse nearest to the middle of each month; but they will serve very well for the whole of the month, *except near opposition*, the change in the position of Jupiter and his Shadow in the interval being too small to be appreciable by the eye, as is evident by comparing the Phases for any two successive months. All the Eclipses which happen when Jupiter is 8° *above*, and the Sun 8° *below* the horizon of Greenwich, are marked with an asterisk to indicate that they are visible at that place; and some which are even within these limits have been also marked, as, under favourable circumstances, they may sometimes be observed.

The Immersion (Im.) denotes the instant of the disappearance of the Satellite, by entering into the shadow of Jupiter; and the Emersion (Em.) the instant of its reappearance at coming out of the shadow. They generally happen when the Satellite is apparently at some distance from the body of Jupiter, except near the opposition of Jupiter to the Sun, when the eclipse takes place near to the body of the planet. Before the opposition, the Immersions and Emersions happen on the Western side, but after opposition on the Eastern side, of the planet: With an inverting telescope, however, the appearances will be directly the contrary. Before the opposition, the Immersions only of the first Satellite are visible; and after the opposition, the Emersions only. It is seldom, also, that the Immersion and Emersion of the second Satellite can be observed at the same eclipse; but both phenomena are generally visible with the third and fourth Satellites. The fourth Satellite does not enter the shadow of Jupiter in 1839, and is therefore omitted.

To find the time at which the Immersion or Emersion of any of the Satellites will take place under any other meridian than that of Greenwich, it is merely necessary to

*add* the difference of longitude (*in time*) to the time of the phenomenon at Greenwich, if the meridian be *east* of Greenwich, or to *subtract* if it be *west*, and the sum or difference will be the time required. But this determines only the instant of the occurrence of the phenomenon: Jupiter may be below the horizon at this time; or he may be above it, and the intensity of sun-light, or even the brightness of twilight, may be such as to render the Satellites invisible. To have the Eclipses visible, it has generally been considered that the Sun should be at least 8° below the horizon, and Jupiter not less than 8° above it at the same time. Adopting these limits, it is then necessary to ascertain the position of the Sun and Jupiter, with respect to the horizon, at the time of the phenomenon. This may be readily accomplished by means of a celestial globe, or near enough for the purpose, by finding the times of rising and setting of the objects, with the assistance of a table of semidiurnal arcs.

The Eclipses of Jupiter's Satellites, especially of the first, afford us, perhaps, the readiest means of determining the longitude; all that is necessary to be known being the exact time of observation: the difference between this time and the time at Greenwich, shows the difference of longitude at once, and it is *east* or *west* of Greenwich according as the time of observation is *greater* or *less* than the Greenwich time.

Suppose the Immersion of Jupiter's first Satellite to be observed, on January 6, 1839, at Paris at $18^h\ 31^m\ 33^s{\cdot}1$ Mean Time at that place; by reference to page XX, it appears that the Immersion will take place at Greenwich at $18^h\ 22^m\ 11^s{\cdot}6$ Greenwich Mean Time; the difference, $9^m\ 21^s{\cdot}5$, is the difference of longitude between Greenwich and Paris; and, because the Paris time is greater than that at Greenwich, we infer that Paris is to the east of Greenwich.

Independent of defects in the tables, there are difficulties attending the observation of these phenomena which unfit them for *accurate* determinations of longitude. Different telescopes give different results; and care should be taken to have recourse to those corresponding observations which have been made under circumstances the most similar, and particularly with telescopes of the same quality and power. When extreme accuracy is not required, the Eclipses of the Satellites will always afford a good approximation towards the difference of meridians, and observations of them should on no account be neglected, especially when the Immersion and Emersion of the same Satellite are both visible.

## Page XXI. of each Month.

### *Approximate Sidereal Times of the Occultations of Jupiter's Satellites by Jupiter, and of the Transits of the Satellites and their Shadows over the Disc of the Planet.*

These phenomena are inserted in order to apprise Astronomers when they are about to happen, as observations of them may tend to improve the Tables of the Satellites. The instruments required to observe them with any thing like precision will preclude the possibility of their ever becoming available at sea. The times are given in days, hours, and minutes; the day being supposed to commence at mean noon, and the hours and minutes representing sidereal time, such as will be shown by a sidereal clock on that day.

The Phenomena for each Satellite are arranged under three distinct heads, and each in the order of the days of the month, so that an inspection of the columns opposite to each Satellite is necessary to determine what phenomena will happen on a given day. The fourth Satellite is neither occulted by Jupiter, nor does it appear on the disc of the Planet in 1839; it has therefore been omitted in this page.

Where an asterisk is annexed to the day of the month, it signifies that the pheno-

menon is visible at Greenwich, the limits of visibility being the same as those adopted for the eclipses.

In the month of May, 1839, under the general heading "Occultations," opposite to Satellite I, and under Immersion, the first quantity recorded is $1^d\ 21^h\ 7^m$, which signifies that at $21^h\ 7^m$ sidereal time on May the 1st an Immersion of the 1st Satellite takes place, but that it is invisible at Greenwich. Under Emersion we find, for the whole of the month, "In the shadow," which signifies that the Emersion of the Satellite cannot be seen, because, although it ceases to be occulted by the body of the Planet, it is still involved in its shadow, from which it does not indeed escape until $23^h\ 56^m\ 55^s{\cdot}0$ sidereal time. (See Eclipses of the Satellites of Jupiter on the preceding page of the month.) Again, in the column of Occultations opposite to Satellite III, it appears that the 3rd Satellite is occulted on the 31st day of the month; that it disappears behind the disc of the Planet at $13^h\ 22^m$, reappears at $16^h\ 11^m$, Sidereal time; but that the Emersion only, is visible at Greenwich.

In the column headed Transits of Satellites, the first transit of Satellite I. at Greenwich appears to be on the 4th day, when the Ingress takes place at $12^h\ 52^m$, and the egress at $15^h\ 6^m$, Sidereal time; that is, it comes into contact with Jupiter's disc at $12^h\ 52^m$, remains *on* the disc $2^h\ 14^m$, and quits it again at $15^h\ 6^m$, sidereal time; both ingress and egress are visible at Greenwich.

The Transits of Shadows are to be interpreted in a similar manner.

## Page XXII. of each Month.

### 1. *Logarithms of* A, B, C, D, *for correcting the Places of the Fixed Stars.*

In the formulæ which express the relation of the apparent place of a Star to its mean place, and reciprocally, there are certain factors which are independent altogether of the Star's place, and are therefore common to all Stars. These factors depend upon the longitudes of the Sun, Moon, and Moon's ascending Node.

The Logarithms here given are the logarithms of these independent factors, conveniently arranged for incorporation with other terms depending upon each particular Star, according to the method recommended by Professor Bessel. They have been computed for Mean Midnight at Greenwich, according to the formulæ exhibited at page 435, omitting in C and D the terms depending on 2 ☾.

In the form under which they now appear, they are chiefly used in conjunction with the Astronomical Society's Tables,* which contain the Logarithms of the remaining factors depending on the Star's place; and for the reduction of any Star in that Catalogue, they appear to afford every facility that can be desired.

Where, however, the apparent place of any Star, *not in the Astronomical Society's Catalogue*, is required, similar quantities to those must either be computed with reference to the particular Star, before we can use the A, B, C, D, or recourse must be had to other and independent means; such, for instance, as are afforded by the Table at pages 436 and 437, which serves equally for all Stars. The formulæ by which this Table has been constructed are given at page 435.

The following Examples will sufficiently illustrate the mode of using both the Tables.

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* "New Tables for facilitating the Computation of Precession, Aberration, and Nutation of 2881 Principal Fixed Stars, together with a Catalogue of the same, reduced to January 1, 1830. Computed at the Expense and under the Direction of the Astronomical Society of London. To which is prefixed an Introduction, explanatory of their Construction and Application. By Francis Baily, Esq." London, 1827. 4to.

at the same time the place where it was observed or computed. Thus, it is the same thing to say that a comet passed its perihelion on January 5, 1839, at $5^h\ 47^m\ 0^s{\cdot}0$, Mean Time at Greenwich; at $5^h\ 56^m\ 21^s{\cdot}5$, Mean Time at Paris; or at $1838^r\ 288^d\ 18^h\ 39^m\ 5^s{\cdot}78$ Equinoctial Time; but the former dates make the localities of Greenwich and Paris enter as elements of the expression; whereas the latter expresses the period elapsed since an epoch common to all the world, and identifiable independently of all localities. By this means all ambiguities in the reckoning of time are supposed to be avoided.

To convert Mean Solar into Equinoctial Time: To the corresponding Greenwich Mean Time add the Equinoctial Time at Mean Noon of the same day at Greenwich: the sum will be the Equinoctial Time required. Thus, in the instance of the comet before alluded to, Paris being $9^m\ 21^s{\cdot}5$ East of Greenwich, subtract this from the Paris time and we get $5^h\ 47^m\ 0^s{\cdot}0$ for the corresponding Greenwich Time, to which add $288^d{\cdot}536178$, or $288^d\ 12^h\ 52^m\ 5^s{\cdot}78$, the Mean Equinoctial Time at Greenwich Mean Noon of January 5, and the sum will represent the Mean Equinoctial Time of the Comet's passage of its perihelion, viz. $288^d\ 18^h\ 39^m\ 5^s{\cdot}78$, from the vernal equinox of the year 1838.

### 4. *Day of the Year.*

The numbers in this column indicate the complete days at mean noon which have elapsed since mean noon of January 1 Mean noon of January 1 is therefore reckoned 0, and 1 is found opposite to that of January 2, because at that instant one entire day has elapsed.

### 5. *Fraction of the Year.*

These fractions are the quotients found by dividing the numbers in the preceding column by 365·25. The day and fraction of the year are useful in many Astronomical calculations.

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### *Obliquity of the Ecliptic.* (Page 266.)

The apparent inclination of the plane of the Ecliptic to that of the Equator is here given for every 10th day of the year, and continued to January 6 of the following year, marked December 37 for the sake of convenience. This inclination is ever varying, as well from the effect of its mean diminution, as of the nutation of the earth's axis: it is an important element in deducing the positions of the heavenly bodies, with reference to either of the planes, when we know their positions with respect to the other; as, for instance, in computing Right Ascensions and Declinations from Longitudes and Latitudes, and *vice versâ*. If the apparent Obliquity be required for any date not to be found in the Table, it may be obtained by simply taking the proportional part of the variation of the obliquity corresponding to the interval which comprises the given date. Thus, the apparent Obliquity on August 23, 1839, is $23^\circ\ 27'\ 45''{\cdot}82$. For the variation of the Obliquity in the ten days between August the 19th and the 29th, is $0''{\cdot}23$, or $0''{\cdot}023$ for one day, and this being multiplied by 4, the number of days between the 19th and the 23rd, gives $0''{\cdot}09$, to be added to the Obliquity of August the 19th. For most purposes,

however, the Obliquity corresponding to the date in the Table nearest to the given date is sufficient, as is evident from an inspection of the quantities.

### *Sun's Horizontal Parallax.* (Page 266.)

The Sun's Horizontal Parallax is the *greatest* angle under which the equatorial semidiameter of the earth would appear at the Sun's centre. It varies inversely as the distance, and the numbers in this column show the values for every tenth day of the year.

The Parallax serves for reducing a Solar observation made at the surface of the earth to what it would have been if made at the centre.

### *Sun's Aberration.* (Page 266.)

The progressive motion of light, combined with the motion of the Earth in its orbit, causes the Sun to appear in a different position from that which he really occupies, the true position being always in advance of the apparent. The numbers in this column indicate, for every 10th day of the year, the amount of Aberration, or the quantity to be applied to the *true* longitude of the Sun to obtain the *apparent* longitude. The longitudes derived from the Solar Tables include Aberration, and are therefore *apparent* longitudes, such as are contained in this Ephemeris. If the *true* longitude of the Sun be wanted, as is the case in finding the longitude of the Earth for the calculation of the Geocentric place of a body, the aberration must be applied with a contrary sign. Thus, on June 9, 1839, at Mean Noon, by *adding* $20''\cdot05$, the amount of aberration, to $77^\circ\ 54'\ 17''\cdot8$, the apparent longitude of the Sun, we obtain $77^\circ\ 54'\ 37''\cdot85$ for the true longitude.

### *Equation of the Equinoxes.* (Page 266.)

The Solar and Planetary Tables furnish us with the places of the Heavenly Bodies referred to the Mean Equinox; but the true place of the Equinox at any time differs from its mean place, by a quantity which is termed the Equation of the Equinoxes; and the numbers here given show the value of the Equation for every 10th day of the year. They are to be applied, with their proper signs, to the Longitudes reckoned from the Mean Equinox, to obtain the values with respect to the True Equinox.

If the Longitude of a body be given with reference to the true Equinox, as in this Ephemeris, and it be required to find its Longitude reckoned from the Mean Equinox, the Equation of the Equinoxes must be applied with a contrary sign. Thus, the longitude of the Sun, reckoned from the true Equinox, on July 10, 1839, at Mean Noon, is $107^\circ\ 28'\ 38''\cdot1$, and the Equation of the Equinoxes is $+\ 4''\cdot06$; therefore, applying it with the contrary sign, the difference $107^\circ\ 28'\ 34''\cdot04$ is the Sun's Longitude from the *Mean* Equinox on that day.

The Equation corresponding to any date not contained in the Table, may be obtained in the usual way by interpolation.

The Equation of the Equinoxes in Right Ascension, in a similar manner, enables us to find the *apparent* point of intersection of the Ecliptic *on the Equator;* and is necessary in computing Sidereal Time.

*Mean Longitude of ☾'s ascending Node.* (Page 266.)

This column contains the Mean Longitude of the Moon's ascending Node, at Mean Noon of every 10th day of the year, reckoned from the Mean Equinox. The place for any intermediate day is easily found from the daily motion inserted at the foot of the column. The Longitude of the Node is necessary in the calculation of Nutation; it is also sometimes used to determine roughly the Stars which are likely to undergo occultation by the Moon.

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*Ephemeris of the Planets.* (Pages 267 to 431.)

These pages contain the Geocentric and Heliocentric Places of the Planets, Mercury, Venus, Mars, Vesta, Juno, Pallas, Ceres, Jupiter, Saturn, and the Georgian.

The Geocentric Places are the places of the centres of the planets, as they would appear from the centre of the Earth; the Heliocentric, such as they would appear from the centre of the Sun.

The positions of the larger planets are given for Greenwich Mean Noon and the Time of Transit on every day of the year. But those of the minor Planets are given at Noon of every fourth day only, and, for the month preceding and following their Oppositions, at Time of Transit on each day. The Geocentric Right Ascensions and Heliocentric Longitudes, are reckoned from the True Equinox. The Geocentric Right Ascensions and Declinations *are affected with aberration*, and are therefore *apparent* positions.

By means of the positions of Venus, Mars, Jupiter, and Saturn, and particularly of Venus and Jupiter, which are frequently visible when the Sun is above the horizon, the Latitude, Time, and Variation of the Compass, may be found with nearly as much facility and accuracy as by the Sun.

The column headed "Meridian Passage" shows the Mean Time of the Planet's Transit over the meridian of Greenwich, and serves to find the Mean Time of Transit over any other meridian. As in the instance of the Moon before noticed, there are some days on which the planets do not pass the meridian; these are indicated by two asterisks (* *). If we refer to page 272, we shall find that Mercury does not pass over the Greenwich meridian on March 9th, and for a similar reason, viz., that the planetary day is here longer than the mean solar day, and commences so near, but previously, to the noon of the 9th, viz. $0^{m}\cdot1$, as to want still $2^{m}\cdot9$ of its completion at the termination of the 9th day. The planetary day, therefore, includes the solar day of March 9th: it begins *before* the solar day and ends *after* it, and the planet cannot arrive at the meridian at any period of it.

Another phenomenon takes place in the case of the planets, which, however, does not occur with the Moon; it is that of two transits on the same day, which arises from the planetary day being sometimes *shorter* than the solar day, commencing *after* and terminating *before* the solar day, and thus falling entirely within it. This cannot be the case with the Moon, because the lunar day is always greater than the solar day. When two transits occur, the times of both are registered, as at page 274, April 26th, where it appears that Mercury passes the Greenwich meridian $4^{m}\cdot6$ after Mean Noon of the 26th, and again at $23^{h}\ 58^{m}\cdot5$ on the same day, or $1^{m}\cdot5$ [illegible] val of the following Mean Noon.

The positions of the planets for any time not given in the Ephemeris, and under any other meridian than that of Greenwich, are to be found by interpolation in the usual way. *Example:* Required the Right Ascension and Declination of Jupiter at $6^h$ Mean Time of May 15, 1839, in longitude 30° west of Greenwich; also the time of Jupiter's passage over this meridian on the same day. The difference of longitude $2^h$ *added* (because it is west) to the given time, gives $8^h$ for the corresponding Greenwich time.

1. *For the Right Ascension.* The Right Ascension on May 15 is $12^h\ 37^m\ 11^s{\cdot}95$, and on May 16 it is $12^h\ 36^m\ 57^s{\cdot}96$; the difference $13^s{\cdot}99$ is the variation of the Right Ascension in 24 mean hours; therefore, $24^h : 13^s{\cdot}99 :: 8^h : 4^s{\cdot}66$, the proportional part of the variation answering to $8^h$; and this proportional part subtracted (because the Right Ascensions are decreasing) from $12^h\ 37^m\ 11^s{\cdot}95$, the Right Ascension at mean noon on May 15, gives $12^h\ 37^m\ 7^s{\cdot}29$ for the Right Ascension required.

2. *For the Declination.* The Declination on May 15 is S. 2° 22′ 4″·5, and on the 16th it is S. 2° 20′ 49″·7, the difference, 1′ 14″·8, is the variation in 24 hours; and the proportional part of this variation for $8^h$ is 24″·9, which, subtracted from the Declination at noon on the 15th, gives S. 2° 21′ 39″·6 for the Declination required.

3. *For the Meridian Passage.* Take the difference of the times of two consecutive transits; and considering this difference as an acceleration or retardation of the Meridian Passage while the planet has passed over $24^h$ of geographical longitude, take the proportional part of it, due to the difference of meridians, for a correction to be applied to the Meridian Passage at Greenwich, bearing in mind that in east longitudes the passage precedes that at Greenwich, when times are accelerated, and follows it, when they are retarded; and the contrary in west longitudes. In the present case Jupiter passes the meridian of Greenwich on May 15 at $9^h\ 5^m{\cdot}5$, and on May 16 at $9^h\ 1^m{\cdot}4$; the difference is $4^m{\cdot}1$, therefore $24^h : 4^m{\cdot}1 :: 2^h : 0^m{\cdot}3$, the proportional part to be subtracted from $9^h\ 5^m{\cdot}5$, (because the passages are retarded, and the longitude is west of Greenwich,) which gives $9^h\ 5^m{\cdot}2$, mean time at the given place, for the Meridian Passage. Where great accuracy is not required, as in predicting the time of passage, in order to be prepared for observing the altitude of the planet on the meridian, for the determination of the latitude, this method will suffice.

The Right Ascension and Declination at Transit over the Meridian at Greenwich, are readily reduced to the time of transit over any other meridian not far distant, by means of their "Variation in 1 hour of Longitude." Thus: prefix the sign — to the Longitude of the proposed meridian if it be east of Greenwich, but + if it be west, and multiply it by the variation; the product applied *algebraically* (South Declination being considered as negative) to the transit results for Greenwich, will give those for the proposed meridian. *Example:* Suppose the Right Ascension and Declination of Venus were required at Vienna on August 23rd, 1839. Vienna is east of Greenwich $1^h\ 5^m\ 31^s{\cdot}9$, or $-1^h{\cdot}092$, and the "Variation of Right Ascension in 1 hour of Longitude" on August 23rd is $+5^s{\cdot}36$: the product of these numbers is $-5^s{\cdot}85$, which, applied to $12^h\ 37^m\ 35^s{\cdot}76$, the Transit Right Ascension at Greenwich, gives $12^h\ 37^m\ 29^s{\cdot}91$ for that at Vienna. The variation of the Declination on August 23rd is $-58''{\cdot}7$, and the product of $-58''{\cdot}7$ and $-1^h{\cdot}092$ is $+64''{\cdot}1$, which, applied to S. or $-8°\ 9'\ 38''{\cdot}6$, gives S. 8° 8′ 34″·5 for the Declination at Vienna.

The "Sid. Time of Sem. pass. Mer." serves to reduce an observation of the Right

Ascension of the limb, to that of the centre, and the Semidiameter answers a similar purpose for the Declination.

The "Hor. Par.," or Horizontal Parallax, serves for reducing an observation made at the surface to the centre of the Earth.

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*Fixed Stars.* (Pages 432 to 479.)

In pages 432 to 434 are given the mean Right Ascensions and Declinations of 100 principal fixed Stars for Jan. 1, 1839, together with their Annual Variations.

The *standard* Stars are distinguished by capital letters; North Declination by N., and South Declination by S.

The sign + prefixed to an Annual Variation of Right Ascension indicates that the variation is to be *added to*, and the sign —, that it is to be *subtracted from*, the Right Ascension: also, for Stars having *North* Declination, + signifies *add*, and — *subtract*: but for Stars of *South* Declination, + denotes that the Variation is to be *subtracted from*, and — that it is to be *added to*, the Declination.

*Example* 1. Required the Mean Right Ascension and Declination of α TAURI or *Aldebaran* on May 31, 1839. The Annual Variation of the Right Ascension is + $3^{s}\cdot4266$; the Fraction of the year corresponding to May 31, is ·411 (page XXII. of May); the product of these numbers ($1^{s}\cdot408$) is the proportional part of the annual variation due to the period elapsed since January 1, which *added*, because the sign is +, to the Mean Right Ascension on Jan. 1, *viz.*, $4^{h}\ 26^{m}\ 41^{s}\cdot345$, gives $4^{h}\ 26^{m}\ 42^{s}\cdot753$, for the Mean Right Ascension on May 31. The Annual Variation of the Declination is + $7''\cdot940$, which multiplied by ·411 as before, and the product ($3''\cdot26$) *added*, because the sign is + and the Declination *North*, to the Mean Declination on Jan. 1, 1839, *viz.* N. 16° 10′ $48''\cdot86$, gives N. 16° 10′ $52''\cdot12$, for the Mean Declination required.

*Example* 2. Required the Mean Right Ascension and Declination of β URSÆ MINORIS on June 2, 1839. Here the Annual Variation of Right Ascension is — $0^{s}\cdot2766$, and the fraction of the Year ·416 (page XXII. of June); the product ($0^{s}\cdot115$) therefore being *subtracted*, because the sign of the Annual Variation is —, from $14^{h}\ 51^{m}\ 14^{s}\cdot943$, the Right Ascension on Jan. 1, gives $14^{h}\ 51^{m}\ 14^{s}\cdot828$, for the Right Ascension on June 2, 1839.

For the Declination, we have the Annual Variation = — $14''\cdot713$, which, multiplied by ·416, gives $6''\cdot12$. The Declination being *North*, and the sign of the Variation —, this product must be *subtracted* from N. 74° 48′ $48''\cdot89$, and the result is N. 74° 48′ $42''\cdot77$.

*Example* 3. Required the Mean Declination of α SCORPII or *Antares* on May 31, 1839. The Annual Variation is — $8''\cdot509$, and the fraction of the Year ·411; the product of these numbers ($3''\cdot50$) being *added*, because the Declination is *South*, and the sign of the Variation —, to the Declination on Jan. 1, *viz.* S. 26° 4′ $4''\cdot60$, the sum, S. 26° 4′ $8''\cdot10$ is the Declination on May 31, 1839.

Next (page 435) follow Bessel's Formulæ of Reduction; and (pages 436 and 437) a Table for the Reduction of Stars, independently of the Astronomical Society's Constants, an example of which is given at page 590.

The apparent places of α and δ URSÆ MINORIS are given for every day of the year, and those of the remaining 98 Stars for every *tenth* day. They indicate the position which ought to be shown by perfect instruments at the time of the Star's

transit over the meridian of Greenwich; and, therefore, supposing the catalogue of mean places to be correct, they serve to detect any errors of the instruments.

The hours and minutes of Right Ascension, and the degrees and minutes of Declination, are placed at the heads of the columns as constants, and belong equally to all the numbers below them. This arrangement has rendered it necessary, in numerous instances, to continue the seconds beyond 60, as the width of the page would not permit of otherwise indicating any change in the minutes. Thus, the apparent Right Ascension of 51 (Hev.) Cephei, at page 452, on December 17, 1839, is registered $6^h\ 22^m\ 116^s{\cdot}46$, and is to be read $6^h\ 23^m\ 56^s{\cdot}46$. Again, the Declination of $\iota$ Argus (page 455), on the same day, is registered S. 58° 35′ 61″·6, which signifies S. 58° 36′ 1″·6.

The small figures on the right hand of the vertical columns of seconds represent the differences of the quantities above and below them on the left, or the variation of Right Ascension and Declination in 10 days, and serve to find, by interpolation, the values for any intermediate day. As in the case of the Planets before explained, a Star will sometimes arrive at the meridian twice in one Mean Solar day. Wherever this occurs, an asterisk is placed opposite to the interval, and it signifies that the Star has passed the meridian 11 times in the 10 Mean Solar days, and consequently that the Right Ascension or Declination on any intermediate day is to be determined in these particular instances by taking $\frac{1}{11}$th part, instead of $\frac{1}{10}$th, for the daily variation in the interval. Thus, at page 450, we find in the instance of $\varepsilon$ Orionis, an asterisk opposite the interval between June 10 and 20, and a difference of $0^s{\cdot}13$ opposite to the interval between the seconds belonging to those dates; we therefore infer that 11 transits have taken place, and that the daily variation of the Right Ascension is $0^s{\cdot}012$.

When extreme accuracy is required, the apparent places of the 5 Polar Stars demand a further correction, depending on the terms which involve 2 ☾. The apparent places do not include these corrections, on account of the rapid variation of the argument, viz. about 26° in a day, but they are given in a Table at pages 478, 479, for every degree of the Moon's Longitude, and may be readily applied, agreeably to the precept at the foot of that Table.

Formulæ for correcting for *daily* aberration are given in the Preface.

### *Moon-Culminating Stars.* (Pages 480 to 521.)

Those Stars are denominated Moon-Culminating Stars, which being near the Moon's parallel of Declination, and not differing much from her in Right Ascension, are proper to be observed with the Moon, in order to determine differences of meridians. This is effected by comparing the differences of the observed Right Ascensions of such a Star and the Moon's bright limb at any two meridians. If the Moon had no motion, the difference of her Right Ascension from that of the Star would be constant at all meridians; but in the interval of her transit over two different meridians, her Right Ascension will have varied, and the difference between the two compared differences will exhibit the amount of this variation, which added to the difference of the meridians shows the angle through which the westerly meridian must revolve before it comes up with the Moon; hence, and knowing the rate of her increase in Right Ascension, the difference of longitude may be easily obtained.

For the determination of this variation, recourse has hitherto been had to actual observations made at different meridians, because any errors in the computed places of the Moon and Stars are thereby avoided; and the places were formerly given

merely with the view of indicating the times when the observations were to be made. In the present List, however, the Right Ascensions are given with every possible degree of accuracy, so that they may be considered, at least approximately, in the light of corresponding observations made at Greenwich, and be taken to represent the indications of the Greenwich instruments, the same as though they had been actually observed. The traveller has thus an opportunity of rendering his observations immediately available for determining his longitude with considerable accuracy.

*The Right Ascension of the Moon's bright limb* and *Declination of her centre* are given for the lower as well as the upper Culmination, L. being put to denote the Lower Culmination, and U. the Upper Culmination; the Roman numerals indicate the limb of the Moon with reference to its transit over the meridian. The Right Ascension and Declination are given *for every day*, with a view to the more accurate determination of their variation when required. The Moon's age at the time of her upper transit, to the nearest tenth of a day, is inserted in the column containing the Magnitudes of the Stars.

The numbers in the column "Var. of ☾'s R. A. in 1 hour of Long." represent the Variation in Right Ascension of the Moon's Limb during the interval of her transit over two meridians, equidistant from that of Greenwich, and *one* hour distant from each other. They have been deduced from the Right Ascensions of the *bright limb*, and therefore include the effect produced by the change of the semidiameter. They serve to determine the Longitude where the difference of meridians is not very great; but where this difference is considerable, and extreme accuracy is wanted, that variation in Right Ascension should be used which corresponds to the middle of the interval between the observations, which may be readily obtained by interpolation. They also serve to determine the Right Ascension of the bright limb at its transit over any other meridian. Thus: Multiply the difference of longitude between Greenwich and the given meridian, by the variation; and, according as the given meridian is east or west of Greenwich, subtract or add the product to the Right Ascension at Greenwich; the result will be the Right Ascension of the bright limb at transit over the proposed meridian. *Example:* On May 6, 1839, the Right Ascension of the Moon's second limb is $21^h\ 49^m\ 30^s{\cdot}61$, at its upper transit at Greenwich, and the variation for one hour of longitude is $134^s{\cdot}00$: Required the Right Ascension of the limb at its upper transit at Paris. Paris is $9^m\ 21^s{\cdot}5$, or $0^h{\cdot}156$, East of Greenwich; therefore, multiplying $134^s{\cdot}00$ by $0{\cdot}156$, and subtracting the product $20^s{\cdot}90$ from $21^h\ 49^m\ 30^s{\cdot}61$, we have $21^h\ 49^m\ 9^s{\cdot}71$, for the Right Ascension at Paris.

In a similar manner the Declination may be determined at transit over any other Meridian not far distant from that of Greenwich, bearing in mind that South Declinations and East Longitudes are to be considered as *negative*. Thus, in the above *Example:* The Moon's Declination at her upper Transit at Greenwich is S. $15°\ 57'\ 52''{\cdot}6$, and the "Variation in 1 hour of Longitude" $+\ 861''{\cdot}0$, which, multiplied by $-\ 0^h{\cdot}156$, gives $-\ 134''{\cdot}3$, or $-\ 2'\ 14''{\cdot}3$, to be added to S. or $-\ 15°\ 57'\ 52''{\cdot}6$; the Declination at the meridian of Paris is therefore S. $16°\ 0'\ 6''{\cdot}9$.

Where an asterisk is placed opposite to a Star's name, it is intended to denote that the Star is favourably situated for observing its Declination along with that of the Moon in both hemispheres, with a view to the accurate determination of the Moon's Parallax.

The numbers in the column entitled Sid. Time of ☾'s Sem. pass. mer., express the Sidereal intervals which the Moon's Semidiameter, at the time of transit at

Greenwich, takes in passing the meridian, and therefore serve to determine the Transit of the centre from an observed Transit of either limb.

*Occultations.* (Pages 522 to 524.)

These pages contain a list of the Planets and Fixed Stars to the sixth magnitude inclusive, the Occultations of which by the Moon will happen when the objects are above the horizon of Greenwich, together with the Sidereal and Mean Times of the Immersions and Emersions, and the points on the circumference of the Moon's image, where the Star, viewed with a telescope that inverts, will disappear and reappear. By "Angle from N. Point" is to be understood the arc included between the Star, when in contact, and the point of intersection of the limb with a circle passing through the North Pole and the centre of the Moon's image; and by "Angle from Vertex," the arc between the Star at contact and the point where a circle, passing through the zenith and the Moon's centre, intersects the limb; the angles in all cases being reckoned towards the right hand round the circumference of the Moon's image, as seen in an inverting telescope. These latter angles will be found very useful in observing Occultations of small stars with a telescope not mounted equatorially; and, for the observation of an Emersion, a knowledge of the angle is absolutely necessary to enable the observer to direct his attention to the point of the Moon's limb where the Star will reappear. In some instances, Occultations have been inserted which taking place in, or near to, the horizon of Greenwich, are not visible there, but may be visible at places not far distant from Greenwich.

*Elements for facilitating the Computation of Occultations of certain Stars by the Moon.* (Pages 525 to 539.)

These pages contain, 1. The *Apparent* places, at Greenwich Mean Midnight, of the Fixed Stars to the sixth magnitude inclusive, the occultations of which will take place above the horizon at Greenwich.

2. The *Apparent* Places of *all* Stars to the fifth magnitude inclusive, the occultations of which will be visible at *some* part of the Earth.

3. The Greenwich Mean Time at which the Moon would, if viewed from the centre of the Earth, appear to have the same Right Ascension as the Star.

4. The difference of Declination and Position of the Moon, as it would appear with respect to the Star at the instant of Conjunction in Right Ascension.

5. The Parallels of Latitude *beyond* which the Star cannot be occulted by the Moon.

These Elements are useful in the calculation of an Occultation, for being referable to the Moon and Star, as seen from the centre of the Earth, they are independent of geographical position, and serve equally for all places. It is only necessary to apply the difference of longitude from Greenwich to the Greenwich Mean Time of conjunction, to find the time of conjunction at any other meridian; and it is this time to which the positions of the Moon and Star here given will equally correspond.

Thus, the position of the Moon and $\nu$ Geminorum, on Feb. 23, 1839, at $21^h\ 3^m\ 14^s$, Mean Time at Greenwich, is the position at $21^h\ 12^m\ 35^s{\cdot}5$ Mean Time at Paris, because Paris is $9^m\ 21^s{\cdot}5$ east of Greenwich.

By Limiting Parallels are to be understood those parallels of latitude beyond which the occultation cannot *possibly* be visible.

Suppose an observer situate at a star, and having the Moon between him and the Earth, and that he could see the Moon projected on the Earth's disc; he would observe

it moving across the disc from west to east, covering a zone whose breadth will be equal to the apparent diameter of the Moon. Now, it is only within the limits of this zone that the Occultation of a Star by the Moon can be visible. To all the places through which the boundary lines pass, the Star will appear just to touch the Moon's limb; and that projected parallel of latitude, to which one of the boundary lines is a tangent, is one of the limiting parallels, while the intersection of the other boundary line with the circumference of the Earth's disc determines the other limiting parallel.

Limiting Parallels are useful to indicate whether at a given conjunction of a Star with the Moon, the positions are likely to produce an occultation in a given latitude, and thus to save considerable labour to the computer.

Thus, suppose from the times of conjunction, at page 526, it were required to prepare a list of Occultations for Greenwich, whose latitude is 51° 28′ 39″ N. On looking down the column of Limiting Parallels we reject at once the first two stars, because the Limiting Parallels do not comprise the parallel of Greenwich. On Jan. 28, we see that $\gamma$ Cancri may be occulted to all the parallels of latitude between 90 N. and 15 N., which include that of Greenwich; this Star would therefore be fixed upon for calculation if no other considerations existed to cause its rejection. We observe, however, that the conjunction takes place at $20^h\ 10^m$, the intensity of sun-light would therefore prevent its being seen, and it would be rejected in consequence. The next Limiting Parallels having Greenwich between them, are 70 N. and 17 S, opposite to 34 Leonis, on Jan. 30. The time of conjunction in this instance, as regards sun-light, is favourable: if, therefore, on further inquiry, the Star be found to be above the horizon of Greenwich, we should commence the calculation. It will appear, on reference to Jan. 30, page 522, that a near approach only to this star is visible at Greenwich.

*Phenomena.* (Pages 540 to 548.)

Pages 540 to 543 contain all the particulars necessary for indicating the times, places, &c., on the Earth where the Eclipses of the Sun will be visible; also the Elements which have been used in the calculations.

On pages 544 to 548 are given the conjunctions in Right Ascension of the Planets with the Moon, with each other, and with certain Stars; also the times when the Planets are in those parts of their orbits most favourable for observation, with a view to the more accurate determination of their elements; and other notices, chiefly of use to the astronomer.

*Saturn's Ring.* (Page 549.)

On this page are given the quantities which enable us to determine the position of the Ring of Saturn, at intervals of 40 days throughout the year, and whether it be visible or not. The value of $p$ shows the position of the minor axis of the Ring with respect to a circle of declination, those of $a$ and $b$ the Ring's apparent magnitude, and a comparison of those of $l$ and $l'$ its visibility or otherwise. For the plane of the Ring to be *visible*, it is necessary that the Sun and the Earth should be elevated on the same side of it, which is the case during the whole of 1839. The circumstances which determine the *invisibility* of the Ring are, 1st, when its plane passes through the centre of the Sun, or $l' = 0$; 2nd, when it passes through the centre of the Earth, or $l = 0$, and at this time $b$ also $= 0$; 3rd, when the Sun and Earth are on different sides of the plane of the Ring, for the Earth in this case will have the unilluminated side of the Ring turned towards it.

*Phases.* (Page 550.)

This page contains two Tables, the first showing the *Mean Time of the greatest Duration of the Moon's Apparent Disc;* and the second, the *Illuminated portion of the Discs of Venus and Mars* at the middle of each month.

*Opposition of Mars.* (Pages 551 to 555.)

These pages contain an Ephemeris of Stars proper to be observed with Mars about the time of the opposition in 1839, with a view to the determination of the parallax of that planet from corresponding observations of the differences of declination between the planet and stars made at places differing considerably in latitude, such as the Observatories in the northern and southern hemispheres.

The stars are selected in such manner that there may be always sufficient intervals of time between their transits and those of the planet to enable the observer to read off the divisions of the Circle or Micrometer; except in some cases, when two objects, not distant above five or six minutes in declination, will pass through the field, the telescope remaining fixed, and when their difference of declination may be obtained by means of a micrometer.

The apparent Geocentric position of Mars at his transit at Greenwich, will be found at pages 316 to 339.

It is desirable that, when both limbs of Mars cannot be conveniently observed on the same day, the northern limb should be observed on the *odd* days, and the southern limb on the *even* days of the month.

$\beta$ Leonis should, when possible, be observed on every night when the planet is observed.

Those Astronomers who are possessed of good equatorial instruments may take repeated measures of the differences of declination between the selected stars and the planet on the same night, noting the times at which the observations are made.

The mean places of the stars have been taken from the following authorities:

$\chi$, $\sigma$, and $\iota$ Leonis, and $\nu$ and $c$ Virginis from Pond's Catalogue of 1112 Stars.

Leonis (No. 1322 A. S. C.), Virginis (No. 1383 A.S.C.), and $b$ Virginis from the Astronomical Society's Catalogue.

The Stars marked as follows from Bessel's Zone Observations; (D), from Zone 66; ($c$), ($d$), ($e$), ($g$), ($h$), ($i$), ($k$), ($l$), ($m$), ($o$), ($p$), ($q$), and ($r$), from Zone 157; ($a$) and ($b$) from Zone 159; ($t$) and ($y$) from Zone 236; ($w$) and (B) from Zone 237; and ($s$), ($u$), ($x$), ($z$), and (A), from Zones 236 and 237.

The Stars marked ($f$), ($n$), (C) and (E), from the *Histoire Céleste Française*, pages 224, 229 and 230.

*Gambart's Comet.* (Pages 556 and 557.)

These pages contain, for each fourth Mean Midnight at Greenwich between April 29 and Nov. 3, 1839, the Apparent Right Ascension and Declination of Gambart's Comet, together with the Logarithm of its Distance from the Earth and Sun, and the Mean Time of its Meridian Passage at Greenwich.

*Tides.* (Pages 558 to 561.)

The Mean Times of High Water at London Bridge are here given for every day of the year, on the assumption that the time of high water on full and change days, or the *Establishment of the Port*, is $2^h\ 7^m$. The first high tide which happens after Mean Noon of any day is inserted in the 1st column, and the second in the 2nd column. Where a line (—) is inserted, it indicates that there is only *one* high tide on that day. Thus on January 12 there is only one high tide: it occurs at $11^h\ 50^m$, but the succeeding high tide does not take place until $21^m$ after mean noon of January 13.

The times of high water at full and change of the Moon, as given at pages 560 and 561, are reckoned from *Apparent* Noon: They represent the *Establishments of the Ports*, that is, the *actual times* of High Water *when the Moon passes the meridian at the same time as the Sun;* or the *intervals* between the times of Transit of the Moon and the times of High Water *on full and change days.* They serve to determine the time of high water on any other day at those places in the usual manner. The time of high water, however, at any of the places contained in this table, may be deduced for every day from the time of high water at London Bridge, by taking the difference between the *establishment of the port* at each of these places, and the *establishment of the port* at London Bridge, viz. $2^h\ 7^m$, and considering this as a constant quantity, representing the difference of the tides between London Bridge and the place, to be *added* to, or *subtracted* from, London Bridge tides, according as the establishment of the port at the place is *later* or *earlier* than that at London Bridge. Thus the establishment of the port at Aberdeen Bar is $1^h\ 12^m$, and at London Bridge $2^h\ 7^m$; the difference is $0^h\ 55^m$, and the Aberdeen tide precedes that at London: therefore, by *subtracting* $0^h\ 55^m$ from the London Bridge tides, we obtain the Aberdeen tides in *mean* time. On February 19, 1839, the first high water at London Bridge occurs at $5^h\ 42^m$, which being diminished by $0^h\ 55^m$, gives $4^h\ 47^m$ for the corresponding tide at Aberdeen, and so for other places.

*Table showing the Correction required on account of Second Differences in finding the Greenwich Time corresponding to a reduced Lunar Distance.* (Page 562.)

The use of this Table has been sufficiently explained, by the Examples given at page 585.

*Tables for determining the Latitude by Observations of the Pole Star out of the Meridian.* (Pages 563 to 565.)

These Tables serve to determine the Latitude from an observation of the Altitude of the Pole Star out of the Meridian. The method of using them is as follows:

From the observed altitude, when corrected for the error of the instrument, refraction, and dip of the horizon, subtract 1′.

Reduce the Mean Time of Observation at the place to the corresponding Sidereal Time, by the Table given at page 566. (See *Tables of Time Equivalents*, following this article.)

With the Sidereal Time found, take out the *first correction*, with its proper sign. If the sign be +, the correction must be *added* to the reduced altitude; but if it be —, it must be *subtracted*: in either case the result will give an Approximate Latitude.

With this Approximate Latitude and the Sidereal Time of observation, take out the *second correction*, and with the day of the month and the same Sidereal time, take out the *third correction*. These two corrections *added* to the Approximate Latitude, will give the Latitude of the place.

*Example:* On March 6, 1839, in Longitude 37° W. at $7^h\ 43^m\ 35^s$ Mean Time, suppose the altitude of the Pole Star, when corrected for the error of the instrument, refraction, and dip of the horizon, to be 46° 17′ 28″: Required the latitude.

| | | |
|---|---|---|
| Mean Time - - - - - - - | $7^h\ 43^m\ 35^s$ | |
| Diff. Long. (37°) in time - - | 2 28 0 | |
| Greenwich Mean Time - - - | 10 11 35 | |
| Sidereal Time at Greenwich Mean Noon - | | $22^h\ 54^m\ 8^s$ |
| Mean Time at Place - - - - - - - - | | 7 43 35 |
| Acceleration (Tab. page 566) for $10^h\ 12^m$ | | 1 41 |
| Sidereal Time of Observation - - - - | | 6 39 24 |
| Corrected Altitude - - - - - - - - - - | | 46° 17′ 28″ |
| Subtract - - - - - - - - - - | | 1 0 |
| Reduced Altitude - - - - - - - - - - | | 46 16 28 |
| With *Argument* $6^h\ 39^m\ 24^s$, *First Correction* | | − 0 9 6 |
| Approximate Latitude - - - - - - - - - | | 46 7 22 |
| *Arguments*, 46° / $6^h\ 39^m$ } *Second Correction* | | +1 18 |
| *Arguments*, March 6, 1839. / $6^h\ 39^m$ } *Third Correction* | | +1 23 |
| Latitude of the place - - | | N. 46 10 3 |

which differs only 1″ from an actual trigonometrical computation.

The *Tables of Time Equivalents*, given at pages 566 to 569, are useful for converting Mean Time into Sidereal Time, and Sidereal into Mean Time, agreeably to the example annexed to each table. They will serve also for Tables of Acceleration and Retardation, by taking the difference between each argument and its equivalent. Thus, in the Table at pages 566 and 567, the *excess* of the sidereal time equivalents above the arguments of mean time show the *acceleration* of sidereal on mean solar intervals; and in the Table at pages 568 and 569, the *defect* of the mean time equivalents, as compared with the arguments of sidereal time, indicate the *retardation* of mean on sidereal intervals.

The concluding Table, at pages 570 to 574, contains the *Latitudes and Longitudes of the principal Observatories*. This Table has already been considerably improved, and will, it is hoped, be gradually perfected by communications, from each astronomer, of the latest and most accurate determination of his geographical position.

# ERRATA.

(*Continued from* page 523 *of the Nautical Almanac for* 1838. London, 1835.)

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## I.—NAUTICAL ALMANAC FOR THE YEAR 1837.

(London, 1835.)

*Moon-Culminating Stars.* $g$ Arietis. *Subtract* 30ˢ from the Right Ascension of this Star on January 15 and 16, June 27, August 21 and 22, September 17 and 18, and November 11 and 12.

——————— $\delta$ Arietis. *Add* 1° to the Declination of this Star on February 11 and 12, March 10 and 11, June 27, July 24 and 25, September 17 and 18, and November 11 and 12.

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## II.—NAUTICAL ALMANAC FOR THE YEAR 1838.

(London, 1835.)

Page 42, Heading. The Configurations at the top belong to January 31, and should have been omitted.

— 131, Sat. IV. Diagram, insert e

— 199, Sept. 12, D. *for* 9 ·9840 *read* 0 ·9840

— 523, last line, — $r$ — $r^9$

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## III.—NAUTICAL ALMANAC FOR THE YEAR 1839.

(London, 1837.)

Page 130, June 22. The white circle is omitted in some copies.

— 557, August 27. Declination. *for* 2° 40′·9 *read* N. 2° 40′·9

## IV.—MERIDIAN EPHEMERIS OF THE SUN AND PLANETS FOR THE YEAR 1835. (London, 1835.)

Pallas. For Declination of Centre and Var. Dec. for 1 hour, the following values should be substituted:

| Day of the Month. | Declination of Centre. | Var. Dec. for 1 hour. | Day of the Month. | Declination of Centre. | Var. Dec. for 1 hour. |
|---|---|---|---|---|---|
| 1835. | ° ′ ″ | ″ | 1835. | ° ′ ″ | ″ |
| June 10 | +25 42 2·7 | 0·0 | June 22 | +25 20 1·9 | − 9·1 |
| 11 | 25 41 54·4 | − 0·7 | 23 | 25 16 15·8 | 9·8 |
| 12 | 25 41 27·2 | 1·5 | 24 | 25 12 12·6 | 10·5 |
| 13 | 25 40 41·1 | 2·3 | 25 | 25 7 52·9 | 11·2 |
| 14 | 25 39 36·4 | 3·1 | 26 | 25 3 16·6 | 11·9 |
| 15 | 25 38 13·1 | 3·9 | 27 | 24 58 24·2 | 12·5 |
| 16 | 25 36 31·2 | 4·6 | 28 | 24 53 16·2 | 13·1 |
| 17 | 25 34 31·3 | 5·4 | 29 | 24 47 52·8 | 13·8 |
| 18 | 25 32 13·0 | 6·1 | 30 | 24 42 14·5 | 14·4 |
| 19 | 25 29 36·7 | 6·9 | July 1 | 24 36 21·7 | 15·0 |
| 20 | 25 26 42·7 | 7·6 | 2 | 24 30 14·4 | 15·6 |
| 21 | 25 23 31·0 | 8·4 | 3 | 24 23 52·7 | 16·2 |
| 22 | +25 20 1·9 | − 9·1 | 4 | +24 17 16·7 | −16·8 |

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## V.—ASTRONOMICAL SOCIETY'S CATALOGUE.

(*Continued from page* 320 *of Vol. V. of the Memoirs of the Astronomical Society.*)

| | | | | | |
|---|---|---|---|---|---|
| No. 570, | Right Ascens. | *for* | $4^h\ 45^m\ 52^s{\cdot}84$ | *read* | $4^h\ 45^m\ 55^s{\cdot}51$ |
| 701, | Right Ascens. | — | 5 34 19·31 | — | 5 33 19·31 |
| 1167, | *b* | — | + 9·8912 | — | + 8·8912 |
| 1247, | Declination. | — | $-73°\ 10'\ 92''{\cdot}00$ | — | $-73°\ 10'\ 9''{\cdot}20$ |
| 1510, | *d′* | — | + 6·4191 | — | + 9·4191 |
| 1812, | *a′* | — | + 9·6435 | — | + 8·6711 |
| 2064, | Declination. | — | + 4 11 14·55 | — | + 4 23 14·55 |
| 2123, | Declination. | — | − 17 46 54·71 | — | − 17 53 39·07 |
| 2663, | Declination. | — | − 22 24 42·97 | — | − 22 26 42·97 |

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## VI.—INDEX TO THE STARS IN THE CATALOGUE OF THE ASTRONOMICAL SOCIETY.

(*Memoirs of the Ast. Soc.*, Vol. V. London, 1833.)

Page 302, Capricornus, No. 2393, *for* $\tau$ *read* $\sigma$.

LONDON:
Printed by WILLIAM CLOWES and SONS,
Stamford Street.

# APPENDIX

TO THE

# NAUTICAL ALMANAC FOR 1839.

# ON THE ELEMENTS OF THE ORBIT

OF

# HALLEY'S COMET,

## AT ITS APPEARANCE IN THE YEARS 1835 AND 1836.

BY LIEUT. W. S. STRATFORD, R.N.,

Superintendent of the Nautical Almanac.

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THE object of the present paper is to afford the most accurate means of determining the Elements of the Orbit of Halley's Comet, at the instant of its Perihelion Passage in 1835, from *all* the Observations of that Body; and to explain in detail the various operations which have been performed at the Nautical Almanac Office for its accomplishment.

It was originally intended to trace the Comet's history from the period of its return in 1759, but this has been rendered unnecessary by the masterly address of Mr. Airy, the Astronomer Royal, to the Fellows of the Royal Astronomical Society, at their annual general meeting in 1837, on the occasion of presenting the gold medal of the society to Professor Rosenberger, "for his elaborate calculations relating to the return of Halley's Comet." It is impossible to mention Mr. Airy without, at the same time, acknowledging the cordial co-operation which the Author of this paper has experienced from that gentleman, not only in the particular instance of the cometary discussions, but at all times, and on all occasions, in which matters connected with the perfection of the Nautical Almanac and the interests of science have been concerned.

In the SUPPLEMENT to the NAUTICAL ALMANAC for the year 1833, with the view of attracting the early attention of astronomers to the subject, there was first given an Ephemeris of the Comet, from Aug. 3, 1835, to Feb. 11, 1836, founded upon the following elements of its orbit, given by M. de Pontécoulant in the *Conn. des Tems pour l'An* 1833, page 112.

Passage of the perihelion, 1835, Nov. 7·2, Paris mean astronomical time.

| | ° | ′ | ″ |
|---|---|---|---|
| Place of the perihelion on the orbit - - - - - | 304 | 31 | 43 |
| Longitude of the ascending node - - - - - - | 55 | 30 | 0 |
| Inclination of the orbit - - - - - - - - - - | 17 | 44 | 24 |
| Ratio of the excentricity to the semi-axis major - | 0·9675212 | | |
| Semi-axis major - - - - - - - - - - | 17·98705 | | |

Motion retrograde.

This Ephemeris was reprinted in the NAUTICAL ALMANAC for 1835; and as the principal difference of M. de Pontécoulant's elements from those of M. Damoiseau related to the time of passage of the perihelion, a double Ephemeris was added, for the purpose of affording means of an early rectification of this element. The double

Ephemeris contained, for each 8th day, from Aug. 7, 1835, to Feb. 7, 1836, the Right Ascension and Declination, each to minutes, of the Comet, on two suppositions of the arrival at the perihelion, viz., Nov. 3·2 and Nov. 11·2, 1835.

In the same work were also given the co-ordinates of the Sun and Comet, together with a plan of the Heavens, showing, from three different sets of elements, the path of the Comet amongst the fixed stars, and the relative position of the Comet in each on certain days, so as to indicate the direction in which the Comet should be sought for, with the greatest probability of its rediscovery.

It appears that the Comet was first seen at Rome by M. Dumouchel, Director of the Observatory of the Roman College, at $0^h\ 20^m$, sidereal time at the place, on August 5, 1835, in Right Ascension $5^h\ 26^m$, and Declination $+\ 22°\ 27'$. (*Astr. Nach.*, No. 288.) It was observed generally in Europe after the 20th of August.

From a comparison of observations made at the latter end of August with the double Ephemeris, it was estimated that the Comet would arrive at its perihelion about 8·5 days later than the time stated by M. de Pontécoulant.

With a view to a nearer approximation to this element, another double Ephemeris was published on September 30, 1835, containing, for the month of October, 1835, the places of the Comet, on the supposition of the perihelion passage occurring respectively on Nov. 15·1935 and Nov. 16·1935, astronomical mean time at Greenwich.

Additional observations indicated that Nov. 16·1935 might be adopted for the time of passage, without much liability to error. With this time, and the other elements of Pontécoulant unchanged, an Ephemeris was computed from Aug. 20·5 to Sept. 30·5, 1835, which, united with the October Ephemeris computed previously from the same elements, embraced the period between Aug. 20·5 and Oct. 31·5, 1835. With this and six other Ephemerides computed in a similar manner from elements in which a small variation was given to each in succession, whilst the other five remained constant, a general Ephemeris was formed for the same period in which the Right Ascension and Declination consisted each of one known and six unknown quantities.

Having collected 56 Right Ascensions and 56 Declinations from roughly-reduced observations, made between Aug. 20 and Oct. 19, 1835, with these and the corresponding Right Ascensions and Declinations interpolated from the last-mentioned Ephemeris, there were formed 112 equations of condition, from which were deduced corrections for the assumed elements.

From these approximate elements an Ephemeris was immediately published for the month of November; but there being no doubt of some error having crept into the calculations, a revision of the whole was entered upon, and the following results ultimately obtained.

Perihelion passage, 1835, Nov. 15·93546, Mean Astronomical Time at Greenwich

| | | | | |
|---|---|---|---|---|
| Semi-axis major - - - - - - - - - - | 18·0779386 | | | |
| Ratio of the excentricity to the semi-axis major | 0·9675509 | | | |
| | ° | ′ | ″ | |
| Inclination of the orbit - - - - - - - - | 17 | 45 | 56·7 | |
| Longitude of the ascending node - - - - - | 55 | 8 | 21·2 | From Mean Equinox of Nov. 15, 1835 |
| Longitude of the perihelion on the orbit - - | 304 | 32 | 9·2 | |

With these results an Ephemeris for the month of December was prepared, and published on December 1, 1835.

It now remained to ascertain, by a rough comparison with observations, whether these elements were sufficiently approximate for the calculation of perturbations and their own final rectification, and for this purpose the following comparisons were made.

| Date. | Right Ascension. | | | Declination. | | |
|---|---|---|---|---|---|---|
| 1835. | Observed. | Computed. | O—C. | Observed. | Computed. | O—C. |
| | h m s | h m s | s | ° ′ | ° ′ | ′ |
| Aug. 20·5091 | 5 40 52 | 5 40 54 | — 2 | +23 30·0 | +23 29·4 | +0·6 |
| Sept. 2·6526 | 5 52 10 | 5 52 12 | — 2 | 25 10·4 | 25 10·1 | +0·3 |
| Oct. 8·3122 | 8 36 49 | 8 36 49 | 0 | +57 53·7 | +57 54·6 | —0·9 |
| Nov. 8·2233 | 17 15 0 | 17 14 59 | + 1 | —12 51·7 | —12 51·2 | —0·5 |

The observation of August 20 was made at Dorpat by Professor Struve; that of September 2, at Hayes, by the Rev. T. J. Hussey; and those of October 8 and November 8, with the meridian instruments at Cambridge, by Professor Airy.

The results of these comparisons showed that the elements represented the orbit with sufficient accuracy for the purposes in view, and the calculations were immediately commenced. The *first* part of the Series containing the Apparent Right Ascension and Declination and the Logarithm of the *true* distance of the Comet from the Earth, between August 1·5, 1835 and March 31·5, 1836, was published on December 30, 1835, with the view of affording early facilities for the reduction of the observations of the Comet throughout the whole period of its probable visibility. It is here reprinted in a different form, in Table X, the Right Ascensions being expressed in *arc* instead of *time*.

The various calculations relating to the Ephemeris of the Comet were performed agreeably to the method described by Mr. Woolhouse, in the Appendix to the Nautical Almanac for 1835, and those relating to the Perturbations by Professor Airy's method, in the Appendix to the Nautical Almanac for 1837, using in all cases the data from the Nautical Almanac.

In order to prevent confusion, it has been deemed expedient to alter the notation occasionally; and, for facility of reference, it is here collected and arranged in order of the letters of the small italic, the small roman, the large roman, and the greek alphabets.

NOTATION.

$a$ The semi-axis major of the Comet's orbit, at mean noon of July 30, 1835.

$[a]$ The variation of $a$ during one of the equal intervals into which the whole period, through which the variations of the elements are calculated, is divided.

| | |
|---|---|
| $\delta a$ | The whole variation of $a$ in any given number of intervals, from 30·0, 1835. |
| $c = \dfrac{e}{\sin 1''}$ | |
| $c_1$, $c_2$, &c. | Constants used in the calculation of the Variations. |
| $e$ | The ratio of the excentricity to the semi-axis major of the Comet's c |
| $[e]$ | The variation of $e$ during one interval. |
| $\delta e$ | The whole variation of $e$. |
| $\sin f = \dfrac{\cos \nu}{\sin F}$ | |
| $\sin g = \dfrac{\sin \nu \cos \omega}{\sin G}$ | |
| $\sin h = \dfrac{\sin \nu \sin \omega}{\sin H}$ | |
| $i$ | The inclination of the Comet's orbit to the ecliptic. |
| $[i]$ | The variation of $i$ during one interval. |
| $\delta i$ | The whole variation of $i$. |
| $k_1 = \sqrt{a(1-e)}$ | |
| $k_2 = \sqrt{a(1+e)}$ | |
| $m_1$, $m_2$, $m_3$, &c. | The masses of the disturbing planets in the order of their dista from the Sun, the mass of the Sun being supposed 1. |
| $n$ | The mean daily sidereal motion of the Comet. |
| $p$ | The number of the interval. |
| $r$, $r_1$, $r_2$, &c. | The radii vectores of the Comet, and the disturbing Planets in order of their distances from the Sun. |
| $r'$, $r'_1$, $r'_2$, &c. | The projections of $r$, $r_1$, $r_2$, &c. on the ecliptic. |
| $t$ | The number of days from the passage of the perihelion. |
| $u$ | The Comet's excentric anomaly from the perihelion. |
| $v$ | The Comet's true anomaly from the perihelion. |
| $x$, $y$, $z$ | The Comet's heliocentric co-ordinates: $x$, being measured on a passing through the mean vernal equinox of January 1, 1835; $y$, pendicular to $x$ in the plane of the ecliptic (supposed invarial and $z$, perpendicular to the plane of the ecliptic, towards the Nc |
| $x_1$, $x_2$, &c. $y_1$, $y_2$, &c. $z_1$, $z_2$, &c. | The heliocentric co-ordinates of the disturbing planets, in the ord their distances from the Sun, and measured as $x$, $y$, $z$ are n sured. |

$x$, $y$, $z$ — The heliocentric co-ordinates of the Comet, measured in directions parallel to those of X, Y, Z respectively.

$\odot$ — The Sun's *true* longitude from the *true* equinox.

$\odot'$ — ——————————— *mean* equinox of Jan. 1, 1835.

A — The united effects of the disturbing Planets upon the Comet in the direction of the co-ordinate $x$.

$A' = Ax + By + Cz.$

B — The united effects of the disturbing Planets upon the Comet in the direction of the co-ordinate $y$.

$B' = Ac_1 \sin(\mu + \psi) + Bc_2 \sin(\mu - \chi) + Cc_3 \cos \mu.$

C — The united effects of the disturbing Planets upon the Comet in the direction of the co-ordinate $z$.

$C' = Ac_4 + Bc_5 + Cc_6.$

$E = (\alpha' - \alpha) \cos \delta.$

$E' = \delta' - \delta.$

$$F = \tan^{-1}\left(-\frac{\cot \nu}{\cos i}\right)$$

$$F' = F + (\varpi - \nu)$$

$$G = \tan^{-1}\left(\frac{\sin \nu \sin \sigma \cos \omega}{\sin i \cos(\sigma + \omega)}\right)$$

$$G' = G + (\varpi - \nu)$$

$$H = \tan^{-1}\left(\frac{\sin \nu \sin \sigma \sin \omega}{\sin i \sin(\sigma + \omega)}\right)$$

$$H' = H + (\varpi - \nu)$$

$$L = \frac{\sin \zeta}{r} NA' - c_7 \frac{NB'}{r}$$

$$M = c_7 \frac{\cos \zeta}{r} NA' + c_8 r \sin \zeta \, NB' + r \sin \zeta \cos \zeta \, NB'$$

N — The number of seconds in the mean sidereal motion of the Comet during one interval.

[N] — The variation of N during one interval.

$\delta N$ — The whole variation of N.

P, Q, R, S, U, V — Numbers to be determined from the equations of condition, and by which the assumed variation of each of the elements of the orbit, T, $a$, $e$, $\varpi$, $\nu$, and $i$, is to be respectively multiplied to obtain the true variation.

T — The time of passage of the perihelion.

X, Y, Z — The *true* geocentric co-ordinates of the Sun; X, being measured on a l passing through the true vernal equinox of the date; Y, perpendicul the direction of X, and in the plane of the equator; and Z, perpen to the plane of the equator, towards the North.

| | |
|---|---|
| $\alpha$ | The *apparent* geocentric right ascension of the Comet, deduced from the fundamental elements. |
| $\alpha'$ | The *apparent* geocentric right ascension of the Comet, deduced from observation. |
| $\alpha_1, \alpha_2$, &c. | The *apparent* right ascension of the Comet, deduced by varying each of the fundamental elements in succession, in the order T, $a$, $e$, $\varpi$, $\nu$, and $i$. |
| $\Delta\alpha$ | The variation of $\alpha$ in one day. |
| $\beta, \beta_1, \beta_2$ | The heliocentric North latitude of the Comet and the disturbing Planets. |
| $\delta$ | The *apparent* geocentric North declination of the Comet, deduced from the fundamental elements. |
| $\delta'$ | The *apparent* geocentric North declination of the Comet, deduced from observation. |
| $\delta_1, \delta_2$, &c. | The *apparent* geocentric North declination of the Comet, deduced as $\alpha_1$, $\alpha_2$, &c., are deduced. |
| $\Delta\delta$ | The variation of $\delta$ in one day. |
| $\Delta_1$, $\Delta_2$, &c. | The coefficients of P, Q, &c., in the equations of condition dependent upon right ascension. |
| $\Delta'_1$, $\Delta'_2$, &c. | The coefficients of P, Q, &c., in the equations of condition dependent upon declination. |
| $\varepsilon$ | The Comet's mean longitude. |
| $[\varepsilon]$ | The variation of $\varepsilon$ during one interval. |
| $\delta\varepsilon$ | The whole variation of $\varepsilon$. |
| $\zeta = \mu + \nu - \varpi =$ | the angular distance of the Comet from the perihelion. |
| $\theta, \theta_1, \theta_2$, &c. | The *true* heliocentric longitude of the Comet and the disturbing Planets on the ecliptic. |
| $\lambda_1, \lambda_2$, &c. | The distance of each disturbing planet from the Comet. |
| $\mu$ | The argument of latitude. |
| $\mu'$ | The projection of $\mu$ on the ecliptic. |
| $\nu$ | The longitude of the Comet's ascending node. |
| $[\nu]$ | The variation of $\nu$ during one interval. |
| $\delta\nu$ | The whole variation of $\nu$. |
| $\varpi$ | The longitude of the perihelion, measured from the first point of Aries, on the ecliptic, to the node, and thence on the orbit. |
| $[\varpi]$ | The variation of $\varpi$ during one interval. |
| $\delta\varpi$ | The whole variation of $\varpi$. |
| $\sigma = \tan^{-1}\dfrac{\tan i}{\cos \nu}$ | |
| $\phi = \sin^{-1} e.$ | |
| $\chi = \operatorname{cotan}^{-1}(\operatorname{cotan} \nu \cos i.)$ | |
| $\psi = \tan^{-1}(\tan \nu \cos i.)$ | |
| $\omega$ | The obliquity of the ecliptic. |

CALCULATION OF THE EPHEMERIS OF THE COMET FROM THE APPROXIMATE ELEMENTS OF ITS ORBIT, CONSIDERED AS INVARIABLE, BETWEEN AUGUST 1, 1835, AND MARCH 31, 1836.

At the rediscovery of the Comet on August 5, 1835, about 102 days from the perihelion, it was only just perceptible in the best telescopes. The extension of the ephemeris therefore to March 31, 1836, or 136 days after the perihelion passage, would it was presumed embrace the utmost possible limits of visibility. Sir J. Herschel and Mr. Maclear, however, saw it at the Cape so late as May 5, 1836. It will therefore be necessary, hereafter, to extend the whole of the calculations to this period, to render the work complete.

The longitudes of the ascending node, and of the perihelion, having been reduced to the true equinox of Aug. 7, and Nov. 15, 1835, and Feb. 23, 1836, by the application of precession and nutation, three independent values of F, G, H, and sin $f$, sin $g$, sin $h$, were accurately computed for those dates from the formulæ,

$$\tan \mathrm{F} = -\frac{\cot \nu}{\cos i} \qquad \sin f = \frac{\cos \nu}{\sin \mathrm{F}}$$

$$\tan \mathrm{G} = \frac{\sin \nu \sin \sigma \cos \omega}{\sin i \cos (\sigma + \omega)} \qquad \sin g = \frac{\sin \nu \cos \omega}{\sin \mathrm{G}}$$

$$\tan \mathrm{H} = \frac{\sin \nu \sin \sigma \sin \omega}{\sin i \sin (\sigma + \omega)} \qquad \sin h = \frac{\sin \nu \sin \omega}{\sin \mathrm{H}}$$

And the values for each tenth day obtained by interpolation with differences to the second order, and thence for each day by simple proportion.

The excentric anomaly ($u$), true anomaly ($v$), and radius vector ($r$), were then computed for every mean midnight, commencing with Aug. 1·5, 1835, and terminating with March 31·5, 1836, from the formulæ:—

$$n = \frac{3548''\cdot 19269}{a^{\frac{3}{2}}} \qquad c = \frac{e}{\sin 1''}$$

$$k_1 = \sqrt{a(1-e)} \qquad k_2 = \sqrt{a(1+e)}$$

$$u - c \sin u = nt$$

$$\tan \tfrac{1}{2} v = \frac{k_2 \sin \frac{1}{2} u}{k_1 \cos \frac{1}{2} u}$$

$$\sqrt{r} = \frac{k_1 \cos \frac{1}{2} u}{\cos \frac{1}{2} v}$$

The true heliocentric co-ordinates of the Comet were obtained for each mean midnight, from

$$\mathrm{x} = r \sin f \sin (\mathrm{F}' + v)$$
$$\mathrm{y} = r \sin g \sin (\mathrm{G}' + v)$$
$$\mathrm{z} = r \sin h \sin (\mathrm{H}' + v)$$

The excentric anomaly, the logarithm of the radius vector, and the co-ordinates of the Comet are inserted in Table I.

The true geocentric co-ordinates of the Sun were obtained for each mean midnight from the formulæ,

$$X = r_3 \cos \odot$$
$$Y = r_3 \sin \odot \cos \omega$$
$$Z = r_3 \sin \odot \sin \omega = Y \tan \omega$$

and are inserted in Table II.

Combining the true heliocentric co-ordinates of the Comet with the true geocentric co-ordinates of the Sun we obtain for the true geocentric co-ordinates of the Comet $X+x$, $Y+y$, and $Z+z$, and thence

$$\tan \alpha = \frac{Y+y}{X+x}$$
$$\tan \delta = \frac{Z+z}{X+x} \cos \alpha$$
$$\lambda_3 = \frac{Z+z}{\sin \delta}$$

The results being *true* Right Ascensions and Declinations were then reduced to *apparent* by applying aberration, viz.,

$$\text{Aberration in} \begin{cases} \text{Right Asc.} = -\cdot 0057382\, \lambda_3 . \Delta \alpha \\ \text{Declination} = -\cdot 0057382\, \lambda_3 . \Delta \delta \end{cases}$$

The apparent right ascension and declination, and the logarithm of the true distance of the Comet from the Earth, are given in Table X.

Between October 1 and 28 the daily variation of the place of the Comet appeared too irregular to admit of easy or accurate interpolation. The intervals were therefore reduced to six and three hours. The $\alpha$ and $\delta$ and $\lambda_3$, for intervals of six hours, were obtained from interpolated values of the geocentric co-ordinates of the Comet, and those for intervals of three hours, by interpolating the resulting values for six hours.

## CALCULATION OF THE PERTURBATIONS.

Having decided on ascertaining the effects produced by each of the planets, Mercury, Venus, the Earth, Mars, Jupiter, Saturn, and the Georgian, between Aug. 1, 1835, and March 31, 1836, the whole period was divided, in the first instance, into intervals of eight days each, and for the middle day of each interval, the first being Aug. 5, the heliocentric co-ordinates of the Comet and the disturbing Planets were computed.

The longitudes of the ascending node and perihelion were first reduced to the mean equinox of Jan. 1, 1835, by the application of precession; and the true anomalies, for mean noon of each middle day, interpolated from those computed for mean midnight for the Ephemeris. The heliocentric co-ordinates of the Comet for mean noon of each eighth day were then determined as follows:

$$\mu = (\varpi - \nu) + v = 249^\circ\ 23'\cdot 8 + v$$
$$\tan \mu' = \tan \mu \cos i \qquad \theta = \mu' + \nu$$
$$\sin \beta = \sin \mu \sin i \qquad r' = r \cos \beta$$

$$x = r' \cos \theta$$
$$y = r' \sin \theta$$
$$z = r \sin \beta.$$

The results are inserted in Table III.

The heliocentric longitudes of the disturbing planets were reduced from the apparent equinox to the same mean equinox as the Comet, viz., Jan. 1, 1835, by the application of precession and nutation.

With the heliocentric longitude from the mean equinox, and the heliocentric latitude, the co-ordinates of the planets were obtained from formulæ similar to those used for the Comet, viz.:

$$r_1' = r_1 \cos \beta_1$$
$$x_1 = r_1' \cos \theta_1$$
$$y_1 = r_1' \sin \theta_1$$
$$z_1 = r_1 \sin \beta_1$$

and those of the Earth from

$$x_3 = - r_3 \cos \odot'$$
$$y_3 = - r_3 \sin \odot'$$
$$z_3 = 0$$

The heliocentric co-ordinates of Mercury, Venus, the Earth, and Mars, were computed on each eighth day in succession, and those of Jupiter, Saturn, and the Georgian, on each sixteenth day, commencing at mean noon of August 5, 1835, and are contained in Table III.

## FORCES A, B, C.

The forces A, B, C, in the directions of the Comet's heliocentric co-ordinates, $x$, $y$, $z$, respectively, were obtained for every eighth day, commencing with Aug. 5, 1835; those of Mercury, Venus, the Earth, and Mars, by direct calculations, and those of Jupiter, Saturn, and the Georgian by interpolation of 16 day intervals.

The masses used were the following:

| | | |
|---|---|---|
| For Mercury the log of | | $m_1 = 3 \cdot 69340$ |
| Venus | — | $m_2 = 4 \cdot 39663$ |
| Earth | — | $m_3 = 4 \cdot 44985$ |
| Mars | — | $m_4 = 3 \cdot 57181$ |
| Jupiter | — | $m_5 = 6 \cdot 97935$ |
| Saturn | — | $m_6 = 6 \cdot 45445$ |
| Georgian | — | $m_7 = 5 \cdot 74671$ |

Putting $\lambda_1 = \left\{(x - x_1)^2 + (y - y_1)^2 + (z - z_1)^2\right\}^{\frac{1}{2}}$

$$A = m_1 \left\{\frac{x - x_1}{\lambda_1^3} + \frac{x_1}{r_1^3}\right\} + m_2 \left\{\frac{x - x_2}{\lambda_2^3} + \frac{x_2}{r_2^3}\right\} + \&c.$$

$$B = m_1 \left\{\frac{y - y_1}{\lambda_1^3} + \frac{y_1}{r_1^3}\right\} + m_2 \left\{\frac{y - y_2}{\lambda_2^3} + \frac{y_2}{r_2^3}\right\} + \&c.$$

$$C = m_1 \left\{\frac{z - z_1}{\lambda_1^3} + \frac{z_1}{r_1^3}\right\} + m_2 \left\{\frac{z - z_2}{\lambda_2^3} + \frac{z_2}{r_2^3}\right\} + \&$$

The irregularity of the values of A, B, C thus obtained for intervals of eight days, suggested the expediency of shortening the interval. An interval of four days was then adopted; and, taking Aug. 1 as the middle of the first interval, the forces A, B, C were now obtained for every eighth day, commencing with Aug. 1, thus affording a series for each fourth day.

For the additional values of A, B, C, the co-ordinates of the Comet and Mercury were obtained independently, those of Venus, the Earth, and Mars, by interpolating the values previously computed. The A, B, C, for Jupiter, Saturn, and the Georgian, were interpolated immediately from the values already obtained for intervals of eight days.

The values of A for each Planet, separately and collectively, are inserted in Table IV.; those of B in Table V.; and those of C in Table VI.

The powerful influence exercised on the Comet by the Earth in the month of October, 1835, on account of the proximity of those bodies at that time; and by Venus about the latter end of November, for a similar cause, appeared to render it necessary to shorten the interval.

Adopting an interval of 1 day, the variations $[a]$, $[\varepsilon]$, &c., dependent on the Earth alone, were then computed for the period commencing with October 4, and ending with October 24, 1835, and thence the total variation $\delta a$, $\delta\varepsilon$, &c., between October 6, and October 22, 1835.

The variations dependent upon Venus alone were computed for an interval of 1 day for the period commencing with November 17, and ending with December 11, 1835, and thence the total variation between November 19, and December 9, 1835. The results were then compared with the total variation of the elements for the same periods by means of Table IX. and found to be almost insensible.

## CALCULATION OF THE VARIATION OF ELEMENTS.

These were computed for every fourth day, from the following formulæ:

$$\tan \psi = \tan \nu \cos i$$
$$\tan \chi = \operatorname{cotan} \nu \cos i$$
$$c_1 = \frac{\cos \nu}{\cos \psi}$$
$$c_2 = \frac{\sin \nu}{\cos \chi}$$
$$c_3 = -\sin i$$
$$c_4 = -\sin i \sin \nu$$
$$c_5 = +\sin i \cos \nu$$
$$c_6 = -\cos i$$
$$A' = Ax + By + Cz$$
$$B' = Ac_1 \sin(\mu + \psi) + Bc_2 \sin(\mu - \chi) + Cc_3 \cos \mu$$
$$C' = Ac_4 + Bc_5 + Cc_6$$
$$c_7 = +a \operatorname{cotan} \phi \cos \phi$$
$$c = +\frac{2}{\sin \phi}$$

$$c_9 = -2a^3 \sin 1'' \tan \phi$$
$$c_{10} = +3a^2 \sin 1'' \tan \phi$$
$$c_{11} = +2a$$
$$c_{12} = +a \tan \phi \tan \tfrac{1}{2}\phi$$
$$c_{13} = +\frac{a}{2 \cos \phi \cos^2 \tfrac{1}{2} i}$$
$$c_{14} = +\frac{a}{\cos \phi}$$
$$c_{15} = -a^2 \sin 1'' \cos \phi$$
$$c_{16} = -a \sin 1'' \operatorname{cotan} \phi$$
$$c_{17} = +\frac{a}{\cos \phi \sin^2 i}$$
$$\zeta = \mu + \nu - \varpi$$

$$\mathrm{L} = \frac{\sin \zeta}{r} \mathrm{NA}' - c_7 \frac{\mathrm{NB}'}{r}$$
$$\mathrm{M} = c_7 \frac{\cos \zeta}{r} \mathrm{NA}' + c_8 r \sin \zeta \mathrm{NB}' + r \sin \zeta \cos \zeta \mathrm{NB}'$$

$$[a] = c_9 \mathrm{L}$$
$$[\varepsilon] = -(p - \tfrac{1}{2})\, c_{10} \mathrm{NL} + c_{11} \mathrm{NA}' + c_{12} \mathrm{M} + c_{13} z \mathrm{NC}'$$
$$[\varpi] = c_{13} z \mathrm{NC}' + c_{14} \mathrm{M}$$
$$[e] = c_{15} \mathrm{L} + c_{16} r \mathrm{NB}'$$
$$[\nu] = c_{17} z \mathrm{NC}'$$
$$[i] = c_{14} r \cos \mu \mathrm{NC}'$$

The variations $[a]$, $[\varepsilon]$, &c. of the elements of the orbit in each interval of four days are inserted in Table VIII.

As August 1·0 is the middle of the first interval of four days, the commencement of that interval will be July 30·0: it is from this moment, therefore, that our departure has been taken, and the approximate elements were assumed to represent the actual orbit of the Comet on July 30, at mean noon at Greenwich.

The variations $[a]$, $[\varepsilon]$, &c. were then each differenced to the 2nd order, and the total variations $\delta a$, $\delta\varepsilon$, &c. obtained for each successive fourth day from July 30·0, by adding each variation $[a]$ in succession to the sum of all the variations which preceded it, and increasing each result by $\frac{1}{24}$ of the second difference standing opposite.

The corrections of $\delta\varepsilon$, $\delta\varpi$, $\delta i$, and $\delta\nu$, for diminution of obliquity, were found from the formulæ,

$$\text{correction of } \left\{\begin{matrix}\delta\varepsilon \\ \delta\varpi\end{matrix}\right\} = \text{dimin. of obliq.} \times \sin \nu \tan \tfrac{1}{2} i$$
$$\text{——} \quad \delta i = \text{dimin. of obliq.} \times \cos \nu$$
$$\text{——} \quad \delta\nu = \text{dimin. of obliq.} \times \sin \nu \operatorname{cotan} i$$

the amount of diminution being reckoned from July 30, assuming 0″·457 as the annual diminution.

The results are inserted in Table IX. They represent for any date in the Table the

total amount of alteration which each element of the orbit of July 30·0 has undergone by the action of all the disturbing Planets.

Having obtained these values for every fourth day, commencing with July 30, 1835, the elements of the perturbed orbits were obtained for each fourth day, by the successive addition of each $\delta\alpha$, $\delta\varepsilon$, &c., to the original elements: the mean longitude on July 30 having been taken

$$\varepsilon = \varpi + nt$$

$t$ being the interval in days between July 30·0 and the assumed time of passing the perihelion, viz., Nov. 15·93546.

It now only remained to compute the Right Ascension and Declination of the Comet from each set of perturbed elements, and by a comparison of the results with those in the original Ephemeris derived from the imperturbed elements of July 30·0, to ascertain the alterations produced by the disturbing Planets on the Right Ascension and Declination of the Comet.

The value of $\varepsilon$ for the orbit of each date was assumed to be the mean longitude in that orbit on July 30, and was in each case reduced to the date with the mean motion belonging to the orbit, as determined from its semi-axis major.

With the longitudes $\nu$ and $\varpi$, reduced to the true equinox of each date, by applying precession and nutation, the apparent Right Ascension and Declination of the Comet were determined from each set of perturbed elements for every fourth day, from July 30, 1835. These calculations were conducted in a manner precisely similar to those for the original Ephemeris.

Subtracting the $\alpha$ and $\delta$ of the original Ephemeris from the $\alpha$ and $\delta$ derived from the disturbed elements, the effect of perturbation upon the Right Ascension and Declination for each fourth day, from July 30, was obtained, and thence, by interpolation, the daily effect.

These perturbations are inserted in Table X. They are to be applied with the proper sign to the Right Ascension and Declination of the Comet in the same Table, to furnish the apparent Right Ascension and Declination, such as should be exhibited by observation, on the presumption that the elements of July 30, 1835, are the true elements of the Comet's orbit at that period.

## CORRECTION OF THE ASSUMED ELEMENTS.

Let it be now supposed that the true elements of the orbit on July 30·0, 1835, were

$$\begin{aligned} &T + 0^{d}{\cdot}02\ P \\ &a + 0{\cdot}01\ Q \\ &e + 0{\cdot}0001\ R \\ &\varpi + 1'\ S \\ &\nu + 1'\ U \\ &i + 1'\ V \end{aligned}$$

T, $a$, &c., being the numerical values of the assumed elements on July 30, (page 186), and 0·02 P, 0·01 Q, &c., the corrections due to those elements.

If with the elements $T+0{\cdot}02$, $a$, $e$, $\varpi$, $\nu$, $i$, a right ascension $\alpha_1$ and declination $\delta_1$ be computed for the time $t$ in a way similar in every respect to that described in pages 191 and 192, it is plain that $\alpha_1-\alpha$ and $\delta_1-\delta$ are the variations of right ascension and declination produced by the given variation ($0{\cdot}02$) of T alone. Now if the elements have been obtained sufficiently near in the first instance to justify the presumption that the variations of the right ascension and declination will be proportional simply to the variation of the element which produces them, then for the true variation of T, viz. $0{\cdot}02$ P, the variation of right ascension will be $(\alpha_1-\alpha)$ P, or reduced to the arc of a great circle, $(\alpha_1-\alpha)\cos\delta$ . P, and of declination $(\delta_1-\delta)$ P.

In the same manner the elements T, $a+0{\cdot}01$, $e$, $\varpi$, $\nu$, $i$ will furnish a right ascension $\alpha_2$ and declination $\delta_2$; and the variations $\alpha_2-\alpha$, $\delta_2-\delta$ will be dependent upon the given variation of $a$ alone. The variations produced by the true variation of $a$, viz. $0{\cdot}01$ Q, will therefore be $(\alpha_2-\alpha)\cos\delta$ . Q in right ascension, and $(\delta_2-\delta)$ . Q in declination.

By thus varying each of the other elements in succession by a given minute quantity, a knowledge is obtained of its separate influence in altering the right ascension and declination, and hence the influence of the assumed unknown total variations, viz.

For variation of $e = {\cdot}0001$ R, the variation in $\begin{cases} \text{R.A.} = (\alpha_3-\alpha)\cos\delta \,.\, \text{R} \\ \text{Dec.} = (\delta_3-\delta) \,.\, \text{R} \end{cases}$

——— $\varpi = 1'$ S ——— $\begin{cases} \text{R.A.} = (\alpha_4-\alpha)\cos\delta \,.\, \text{S} \\ \text{Dec.} = (\delta_4-\delta) \,.\, \text{S} \end{cases}$

——— $\nu = 1'$ U ——— $\begin{cases} \text{R.A.} = (\alpha_5-\alpha)\cos\delta \,.\, \text{U} \\ \text{Dec.} = (\delta_5-\delta) \,.\, \text{U} \end{cases}$

——— $i = 1'$ V ——— $\begin{cases} \text{R.A.} = (\alpha_6-\alpha)\cos\delta \,.\, \text{V} \\ \text{Dec.} = (\delta_6-\delta) \,.\, \text{V} \end{cases}$

Having the variation of $\alpha$ and $\delta$ consequent upon a variation of each element singly, now suppose all the elements to vary together, the total variation of right ascension and declination of the Comet will be

$$+\Delta_1\,\text{P}+\Delta_2\,\text{Q}+\Delta_3\,\text{R}+\Delta_4\,\text{S}+\Delta_5\,\text{U}+\Delta_6\,\text{V}=(\alpha'-\alpha)\cos\delta=\text{E}$$
$$+\Delta'_1\,\text{P}+\Delta'_2\,\text{Q}+\Delta'_3\,\text{R}+\Delta'_4\,\text{S}+\Delta'_5\,\text{U}+\Delta'_6\,\text{V}=(\delta'-\delta)=\text{E}'$$

where P, Q, R, S, U, V are the unknown quantities to be determined.

$\Delta_1$, $\Delta_2$, &c. $\Delta'_1$, $\Delta'_2$, &c. } The variations of right ascension and declination determined from given minute variation of elements, as before explained.

$\alpha'$, $\delta'$ An observed right ascension and declination at the time for which $\alpha$ and $\delta$ have been computed.

On these principles have the equations of condition in Table XI been formed. Six different Ephemerides have been computed from six different sets of elements; and subtracting from each resulting Right Ascension and Declination the correspon Right Ascension and Declination in Table X, derived from the original elen the differences (those of R. A. being first multiplied by cos $\delta$,) form the coe of P, Q, R, &c.; indicating, for any given time within the limits of the t numerical amount of variation caused by a minute variation of each element

The mode of using the table is as follows:—Having a reduced observat

Ascension and Declination at a given mean time, find, by interpolating Table XI, the coefficients of P, Q, R, &c., for that time:—find also, by interpolating Table X, the Right Ascension $\alpha$ and Declination $\delta$, including the perturbations, for the same instant: subtract the interpolated from the observed Right Ascension, and multiply the remainder by cos $\delta$, the product is to be substituted for E, the right hand term in the equations of condition dependent upon Right Ascension.

Subtract the interpolated from the observed Declination (North Declination being +, and South —), and the remainder is to be substituted for E′, the right hand term in the equations of condition dependent upon Declination.

The unknown quantities being 6, require absolutely only 6 equations for their complete determination, but from the uncertainty attached to observations of Comets, it is desirable to procure as many as possible, and form similar equations of condition, the resolution of any number of which may be effected by the *method of least squares.*

Each observation of Right Ascension and Declination furnishes, conjointly with the Ephemeris, a value of E and E′; and all the equations combined as before mentioned, and resolved, will furnish the value of the unknown quantities P, Q, R, &c., and hence the corrections to be applied to the assumed orbit of July 30, to obtain the true orbit of the Comet on that day.

When from a complete discussion of all the observations deserving of confidence, the assumed orbit of July 30, with the position of the perihelion therein, and the time of perihelion passage, shall have been corrected, the total variation of each of the elements for each fourth day, from July 30, given in Table IX, furnishes a ready means of reducing the orbit and the position of the perihelion to the instant of the Comet's passage by that point.

W. S. Stratford.

# TABLES.

## TABLE I.

Containing, for each Mean Midnight at Greenwich (Astronomical time) August 1, 1835, to March 31, 1836, the Comet's Excentric Anomaly ($u$), L rithm of the Radius Vector ($r$), and True Heliocentric co-ordinates (x, y, x, being measured on a line passing through the true Vernal Equinoctial of the date; y, on a line in a plane parallel to that of the Equator, and per dicular to the direction of x; and z, perpendicular to the plane of the Equ towards the North.

| Date. | $u$ | Log. of $r$ | x | y | z |
|---|---|---|---|---|---|
| 1835. | ° ′ ″ | | | | |
| Aug. 1 ·5 | 23 13 56 ·58 | 0 ·3021016 | +0 ·9934592 | +1 ·6196067 | +0 ·6400 |
| 2 ·5 | 23 6 58 ·85 | 0 ·2990714 | 0 ·9942075 | 1 ·6032837 | 0 ·6364 |
| 3 ·5 | 22 59 58 ·31 | 0 ·2960138 | 0 ·9949189 | 1 ·5869050 | 0 ·6328 |
| 4 ·5 | 22 52 54 ·63 | 0 ·2929266 | 0 ·9955925 | 1 ·5704610 | 0 ·6292 |
| 5 ·5 | 22 45 47 ·96 | 0 ·2898106 | 0 ·9962267 | 1 ·5539570 | 0 ·6255 |
| 6 ·5 | 22 38 38 ·33 | 0 ·2866660 | 0 ·9968209 | 1 ·5373970 | 0 ·6218 |
| 7 ·5 | 22 31 25 ·49 | 0 ·2834906 | 0 ·9973750 | 1 ·5207700 | 0 ·6181 |
| 8 ·5 | 22 24 9 ·45 | 0 ·2802842 | 0 ·9978869 | 1 ·5040790 | 0 ·6144 |
| 9 ·5 | 22 16 50 ·08 | 0 ·2770462 | 0 ·9983565 | 1 ·4873210 | 0 ·6106 |
| 10 ·5 | 22 9 27 ·50 | 0 ·2737772 | 0 ·9987832 | 1 ·4705020 | 0 ·6068 |
| 11 ·5 | 22 2 1 ·60 | 0 ·2704760 | 0 ·9991642 | 1 ·4536180 | 0 ·6030 |
| 12 ·5 | 21 54 32 ·11 | 0 ·2671406 | 0 ·9995002 | 1 ·4366610 | 0 ·5991 |
| 13 ·5 | 21 46 59 ·20 | 0 ·2637726 | 0 ·9997897 | 1 ·4196410 | 0 ·5953 |
| 14 ·5 | 21 39 22 ·77 | 0 ·2603706 | 1 ·0000309 | 1 ·4025540 | 0 ·5913 |
| 15 ·5 | 21 31 42 ·81 | 0 ·2569340 | 1 ·0002227 | 1 ·3853990 | 0 ·5874 |
| 16 ·5 | 21 23 59 ·20 | 0 ·2534626 | 1 ·0003650 | 1 ·3681770 | 0 ·5834 |
| 17 ·5 | 21 16 11 ·61 | 0 ·2499532 | 1 ·0004558 | 1 ·3508750 | 0 ·5794 |
| 18 ·5 | 21 8 20 ·35 | 0 ·2464082 | 1 ·0004936 | 1 ·3335080 | 0 ·5754 |
| 19 ·5 | 21 0 25 ·36 | 0 ·2428272 | 1 ·0004786 | 1 ·3160740 | 0 ·5714 |
| 20 ·5 | 20 52 26 ·12 | 0 ·2392058 | 1 ·0004070 | 1 ·2985570 | 0 ·5673 |
| 21 ·5 | 20 44 23 ·12 | 0 ·2355478 | 1 ·0002793 | 1 ·2809760 | 0 ·5632 |
| 22 ·5 | 20 36 15 ·98 | 0 ·2318502 | 1 ·0000940 | 1 ·2633190 | 0 ·5590 |
| 23 ·5 | 20 28 4 ·45 | 0 ·2281108 | 0 ·9998470 | 1 ·2455800 | 0 ·5548 |
| 24 ·5 | 20 19 48 ·87 | 0 ·2243320 | 0 ·9995412 | 1 ·2277720 | 0 ·5506 |
| 25 ·5 | 20 11 28 ·62 | 0 ·2205090 | 0 ·9991710 | 1 ·2098760 | 0 ·5463 |
| 26 ·5 | 20 3 4 ·17 | 0 ·2166456 | 0 ·9987370 | 1 ·1919110 | 0 ·5421 |
| 27 ·5 | 19 54 35 ·12 | 0 ·2127380 | 0 ·9982370 | 1 ·1738640 | 0 ·5377 |
| 28 ·5 | 19 46 1 ·47 | 0 ·2087864 | 0 ·9976685 | 1 ·1557380 | 0 ·5334 |
| 29 ·5 | 19 37 23 ·12 | 0 ·2047902 | 0 ·9970305 | 1 ·1375330 | 0 ·5290 |
| 30 ·5 | 19 28 39 ·96 | 0 ·2007480 | 0 ·9963210 | 1 ·1192460 | 0 ·5245 |
| 31 ·5 | 19 19 51 ·84 | 0 ·1966586 | +0 ·9955375 | +1 ·1008750 | +0 ·5201 |

## TABLE I.—*continued.*

| Date. | u | Log. of r | x | y | z |
|---|---|---|---|---|---|
| 1835. | ° ′ ″ | | | | |
| ug. 31 ·5 | 19 19 51 ·84 | 0 ·1966586 | +0 ·9955375 | +1 ·1008750 | +0 ·5201040 |
| ep. 1 ·5 | 19 10 58 ·73 | 0 ·1925220 | 0 ·9946785 | 1 ·0824220 | 0 ·5155884 |
| 2 ·5 | 19 2 0 ·47 | 0 ·1883362 | 0 ·9937410 | 1 ·0638820 | 0 ·5110315 |
| 3 ·5 | 18 52 56 ·97 | 0 ·1841010 | 0 ·9927245 | 1 ·0452580 | 0 ·5064341 |
| 4 ·5 | 18 43 47 ·97 | 0 ·1798138 | 0 ·9916247 | 1 ·0265400 | 0 ·5017930 |
| 5 ·5 | 18 34 33 ·77 | 0 ·1754778 | 0 ·9904415 | 1 ·0077480 | 0 ·4971120 |
| 6 ·5 | 18 25 13 ·86 | 0 ·1710878 | 0 ·9891705 | 0 ·9888602 | 0 ·4923859 |
| 7 ·5 | 18 15 48 ·02 | 0 ·1666426 | 0 ·9878092 | 0 ·9698784 | 0 ·4876133 |
| 8 ·5 | 18 6 16 ·51 | 0 ·1621440 | 0 ·9863554 | 0 ·9508074 | 0 ·4827964 |
| 9 ·5 | 17 56 39 ·11 | 0 ·1575906 | 0 ·9848072 | 0 ·9316510 | 0 ·4779343 |
| 10 ·5 | 17 46 55 ·37 | 0 ·1529786 | 0 ·9831605 | 0 ·9123946 | 0 ·4730224 |
| 11 ·5 | 17 37 5 ·46 | 0 ·1483094 | 0 ·9814125 | 0 ·8930468 | 0 ·4680629 |
| 12 ·5 | 17 27 9 ·13 | 0 ·1435812 | 0 ·9795602 | 0 ·8736058 | 0 ·4630536 |
| 13 ·5 | 17 17 6 ·38 | 0 ·1387936 | 0 ·9776010 | 0 ·8540718 | 0 ·4579945 |
| 14 ·5 | 17 6 56 ·59 | 0 ·1339424 | 0 ·9755304 | 0 ·8344322 | 0 ·4528812 |
| 15 ·5 | 16 56 40 ·13 | 0 ·1290300 | 0 ·9733450 | 0 ·8147010 | 0 ·4477163 |
| 16 ·5 | 16 46 16 ·54 | 0 ·1240534 | 0 ·9710422 | 0 ·7948690 | 0 ·4424965 |
| 17 ·5 | 16 35 45 ·79 | 0 ·1190126 | 0 ·9686180 | 0 ·7749395 | 0 ·4372221 |
| 18 ·5 | 16 25 7 ·51 | 0 ·1139044 | 0 ·9660667 | 0 ·7549054 | 0 ·4318895 |
| 19 ·5 | 16 14 21 ·67 | 0 ·1087290 | 0 ·9633849 | 0 ·7347707 | 0 ·4264990 |
| 20 ·5 | 16 3 28 ·09 | 0 ·1034856 | 0 ·9605694 | 0 ·7145355 | 0 ·4210495 |
| 21 ·5 | 15 52 26 ·47 | 0 ·0981718 | 0 ·9576147 | 0 ·6941950 | 0 ·4155386 |
| 22 ·5 | 15 41 16 ·77 | 0 ·0927882 | 0 ·9545167 | 0 ·6737546 | 0 ·4099664 |
| 23 ·5 | 15 29 58 ·38 | 0 ·0873298 | 0 ·9512687 | 0 ·6531994 | 0 ·4043276 |
| 24 ·5 | 15 18 31 ·63 | 0 ·0818006 | 0 ·9478680 | 0 ·6325483 | 0 ·3986265 |
| 25 ·5 | 15 6 55 ·91 | 0 ·0761956 | 0 ·9443070 | 0 ·6117866 | 0 ·3928567 |
| 26 ·5 | 14 55 11 ·00 | 0 ·0705142 | 0 ·9405810 | 0 ·5909151 | 0 ·3870176 |
| 27 ·5 | 14 43 17 ·03 | 0 ·0647582 | 0 ·9366846 | 0 ·5699451 | 0 ·3811104 |
| 28 ·5 | 14 31 13 ·11 | 0 ·0589216 | 0 ·9326099 | 0 ·5488564 | 0 ·3751282 |
| 29 ·5 | 14 18 59 ·48 | 0 ·0530076 | 0 ·9283524 | 0 ·5276640 | 0 ·3690735 |
| 30 ·5 | 14 6 35 ·82 | 0 ·0470144 | 0 ·9239040 | 0 ·5063664 | 0 ·3629438 |
| ct. 1 ·5 | 13 54 1 ·63 | 0 ·0409398 | 0 ·9192580 | 0 ·4849564 | 0 ·3567352 |
| 2 ·5 | 13 41 16 ·79 | 0 ·0347846 | 0 ·9144076 | 0 ·4634403 | 0 ·3504477 |
| 3 ·5 | 13 28 21 ·03 | 0 ·0285478 | 0 ·9093442 | 0 ·4418178 | 0 ·3440792 |
| 4 ·5 | 13 15 13 ·82 | 0 ·0222278 | 0 ·9040590 | 0 ·4200841 | 0 ·3376257 |
| 5 ·5 | 13 1 55 ·17 | 0 ·0158266 | 0 ·8985456 | 0 ·3982486 | 0 ·3310880 |
| 6 ·5 | 12 48 24 ·48 | 0 ·0093420 | 0 ·8927934 | 0 ·3763035 | 0 ·3244616 |
| 7 ·5 | 12 34 41 ·59 | 0 ·0027756 | 0 ·8867936 | 0 ·3542575 | 0 ·3177458 |
| 8 ·5 | 12 20 46 ·04 | 9 ·9961268 | 0 ·8805362 | 0 ·3321065 | 0 ·3109374 |
| 9 ·5 | 12 6 37 ·48 | 9 ·9893966 | 0 ·8740114 | 0 ·3098547 | 0 ·3040343 |
| 10 ·5 | 11 52 15 ·64 | 9 ·9825862 | +0 ·8672078 | +0 ·2875047 | +0 ·2970345 |

## TABLE I.—*continued.*

| Date. | u | Log. of r | x | y | z |
|---|---|---|---|---|---|
| 1835. | ° ′ ″ | | | | |
| Oct. 10 ·5 | 11 52 15 ·64 | 9 ·9825862 | +0 ·8672078 | +0 ·2875047 | +0 ·29703 |
| 11 ·5 | 11 37 40 ·05 | 9 ·9756970 | 0 ·8601150 | 0 ·2650579 | 0 ·28993 |
| 12 ·5 | 11 22 50 ·50 | 9 ·9687316 | 0 ·8527220 | 0 ·2425212 | 0 ·28273 |
| 13 ·5 | 11 7 46 ·26 | 9 ·9616898 | 0 ·8450138 | 0 ·2198898 | 0 ·27543 |
| 14 ·5 | 10 52 27 ·30 | 9 ·9545774 | 0 ·8369808 | 0 ·1971773 | 0 ·26801 |
| 15 ·5 | 10 36 53 ·09 | 9 ·9473970 | 0 ·8286088 | 0 ·1743849 | 0 ·26050 |
| 16 ·5 | 10 21 3 ·22 | 9 ·9401526 | 0 ·8198842 | 0 ·1515173 | 0 ·25287 |
| 17 ·5 | 10 4 57 ·41 | 9 ·9328506 | 0 ·8107940 | 0 ·1285853 | 0 ·24512 |
| 18 ·5 | 9 48 35 ·00 | 9 ·9254944 | 0 ·8013202 | 0 ·1055881 | 0 ·23726 |
| 19 ·5 | 9 31 55 ·85 | 9 ·9180934 | 0 ·7914509 | 0 ·0825416 | 0 ·22929 |
| 20 ·5 | 9 14 59 ·54 | 9 ·9106550 | 0 ·7811695 | 0 ·0594537 | 0 ·22119 |
| 21 ·5 | 8 57 45 ·46 | 9 ·9031872 | 0 ·7704582 | 0 ·0363288 | 0 ·21298 |
| 22 ·5 | 8 40 13 ·51 | 9 ·8957022 | 0 ·7593024 | +0 ·0131855 | 0 ·20464 |
| 23 ·5 | 8 22 23 ·23 | 9 ·8882118 | 0 ·7476850 | −0 ·0099666 | 0 ·19617 |
| 24 ·5 | 8 4 14 ·56 | 9 ·8807306 | 0 ·7355907 | 0 ·0331082 | 0 ·18758 |
| 25 ·5 | 7 45 46 ·69 | 9 ·8732712 | 0 ·7229972 | 0 ·0562329 | 0 ·17887 |
| 26 ·5 | 7 26 59 ·92 | 9 ·8658540 | 0 ·7098927 | 0 ·0793132 | 0 ·17002 |
| 27 ·5 | 7 7 53 ·64 | 9 ·8584958 | 0 ·6962557 | 0 ·1023373 | 0 ·16103 |
| 28 ·5 | 6 48 27 ·88 | 9 ·8512188 | 0 ·6820712 | 0 ·1252805 | 0 ·15191 |
| 29 ·5 | 6 28 42 ·66 | 9 ·8440474 | 0 ·6673242 | 0 ·1481181 | 0 ·14273 |
| 30 ·5 | 6 8 37 ·86 | 9 ·8370056 | 0 ·6519966 | 0 ·1708276 | 0 ·13339 |
| 31 ·5 | 5 48 13 ·56 | 9 ·8301216 | 0 ·6360744 | 0 ·1933811 | 0 ·12392 |
| Nov. 1 ·5 | 5 27 30 ·00 | 9 ·8234252 | 0 ·6195440 | 0 ·2157490 | 0 ·11438 |
| 2 ·5 | 5 6 27 ·36 | 9 ·8169476 | 0 ·6023926 | 0 ·2379015 | 0 ·10463 |
| 3 ·5 | 4 45 6 ·08 | 9 ·8107226 | 0 ·5846093 | 0 ·2598051 | 0 ·09482 |
| 4 ·5 | 4 23 26 ·85 | 9 ·8047858 | 0 ·5661888 | 0 ·2814225 | 0 ·08491 |
| 5 ·5 | 4 1 30 ·13 | 9 ·7991722 | 0 ·5471216 | 0 ·3027204 | 0 ·07490 |
| 6 ·5 | 3 39 16 ·85 | 9 ·7939190 | 0 ·5274071 | 0 ·3236594 | 0 ·06480 |
| 7 ·5 | 3 16 47 ·94 | 9 ·7890630 | 0 ·5070447 | 0 ·3442008 | 0 ·05462 |
| 8 ·5 | 2 54 4 ·57 | 9 ·7846406 | 0 ·4860391 | 0 ·3643039 | 0 ·04437 |
| 9 ·5 | 2 31 7 ·96 | 9 ·7806866 | 0 ·4643965 | 0 ·3839309 | 0 ·03406 |
| 10 ·5 | 2 7 59 ·57 | 9 ·7772344 | 0 ·4421295 | 0 ·4030404 | 0 ·02371 |
| 11 ·5 | 1 44 40 ·93 | 9 ·7743138 | 0 ·4192531 | 0 ·4215950 | 0 ·01329 |
| 12 ·5 | 1 21 13 ·77 | 9 ·7719514 | 0 ·3957876 | 0 ·4395563 | +0 ·00292 |
| 13 ·5 | 0 57 39 ·86 | 9 ·7701694 | 0 ·3717559 | 0 ·4568896 | −0 ·00748 |
| 14 ·5 | 0 34 1 ·10 | 9 ·7689852 | 0 ·3471868 | 0 ·4735619 | 0 ·01787 |
| 15 ·5 | 0 10 19 ·56 | 9 ·7684100 | 0 ·3221121 | 0 ·4895424 | 0 ·02825 |
| 16 ·5 | 0 13 22 ·99 | 9 ·7684498 | 0 ·2965645 | 0 ·5048074 | 0 ·03858 |
| 17 ·5 | 0 37 4 ·34 | 9 ·7691038 | 0 ·2705833 | 0 ·5193319 | 0 ·04885 |
| 18 ·5 | 1 0 42 ·58 | 9 ·7703662 | 0 ·2442074 | 0 ·5331004 | 0 ·05905 |
| 19 ·5 | 1 24 15 ·70 | 9 ·7722240 | +0 ·2174783 | −0 ·5460981 | −0 ·06917 |

## TABLE I.—*continued.*

| Date. | u | Log. of r | x | y | z |
|---|---|---|---|---|---|
| 1835. | ° ′ ″ | | | | |
| Nov. 19 ·5 | 1 24 15 ·70 | 9 ·7722240 | +0 ·2174783 | −0 ·5460981 | −0 ·0691720 |
| 20 ·5 | 1 47 41 ·88 | 9 ·7746596 | 0 ·1904396 | 0 ·5583170 | 0 ·0791901 |
| 21 ·5 | 2 10 59 ·30 | 9 ·7776506 | 0 ·1631328 | 0 ·5697534 | 0 ·0890973 |
| 22 ·5 | 2 34 6 ·25 | 9 ·7811692 | 0 ·1356024 | 0 ·5804060 | 0 ·0988819 |
| 23 ·5 | 2 57 1 ·23 | 9 ·7851854 | 0 ·1078894 | 0 ·5902805 | 0 ·1085341 |
| 24 ·5 | 3 19 42 ·85 | 9 ·7896660 | 0 ·0800351 | 0 ·5993855 | 0 ·1180451 |
| 25 ·5 | 3 42 9 ·78 | 9 ·7945750 | 0 ·0520802 | 0 ·6077318 | 0 ·1274063 |
| 26 ·5 | 4 4 20 ·93 | 9 ·7998768 | +0 ·0240623 | 0 ·6153356 | 0 ·1366118 |
| 27 ·5 | 4 26 15 ·50 | 9 ·8055344 | −0 ·0039870 | 0 ·6222141 | 0 ·1456570 |
| 28 ·5 | 4 47 52 ·40 | 9 ·8115104 | 0 ·0320279 | 0 ·6283870 | 0 ·1545361 |
| 29 ·5 | 5 9 11 ·21 | 9 ·8177696 | 0 ·0600360 | 0 ·6338764 | 0 ·1632477 |
| 30 ·5 | 5 30 11 ·45 | 9 ·8242774 | 0 ·0879834 | 0 ·6387059 | 0 ·1717897 |
| Dec. 1 ·5 | 5 50 52 ·58 | 9 ·8309996 | 0 ·1158424 | 0 ·6428983 | 0 ·1801603 |
| 2 ·5 | 6 11 14 ·39 | 9 ·8379058 | 0 ·1435917 | 0 ·6464802 | 0 ·1883598 |
| 3 ·5 | 6 31 16 ·68 | 9 ·8449658 | 0 ·1712102 | 0 ·6494756 | 0 ·1963884 |
| 4 ·5 | 6 50 59 ·34 | 9 ·8521522 | 0 ·1986796 | 0 ·6519104 | 0 ·2042471 |
| 5 ·5 | 7 10 22 ·67 | 9 ·8594414 | 0 ·2259913 | 0 ·6538097 | 0 ·2119395 |
| 6 ·5 | 7 29 26 ·30 | 9 ·8668076 | 0 ·2531207 | 0 ·6551979 | 0 ·2194648 |
| 7 ·5 | 7 48 10 ·63 | 9 ·8742314 | 0 ·2800633 | 0 ·6560999 | 0 ·2268274 |
| 8 ·5 | 8 6 35 ·94 | 9 ·8816940 | 0 ·3068094 | 0 ·6565386 | 0 ·2340303 |
| 9 ·5 | 8 24 42 ·38 | 9 ·8891782 | 0 ·3333506 | 0 ·6565376 | 0 ·2410765 |
| 10 ·5 | 8 42 30 ·21 | 9 ·8966684 | 0 ·3596787 | 0 ·6561188 | 0 ·2479692 |
| 11 ·5 | 8 59 59 ·82 | 9 ·9041516 | 0 ·3857907 | 0 ·6553030 | 0 ·2547123 |
| 12 ·5 | 9 17 11 ·55 | 9 ·9116158 | 0 ·4116820 | 0 ·6541116 | 0 ·2613094 |
| 13 ·5 | 9 34 5 ·77 | 9 ·9190510 | 0 ·4373501 | 0 ·6525640 | 0 ·2677644 |
| 14 ·5 | 9 50 42 ·67 | 9 ·9264462 | 0 ·4627882 | 0 ·6506786 | 0 ·2740799 |
| 15 ·5 | 10 7 2 ·88 | 9 ·9337952 | 0 ·4880003 | 0 ·6484727 | 0 ·2802610 |
| 16 ·5 | 10 23 6 ·65 | 9 ·9410906 | 0 ·5129837 | 0 ·6459639 | 0 ·2863110 |
| 17 ·5 | 10 38 54 ·54 | 9 ·9483274 | 0 ·5377420 | 0 ·6431681 | 0 ·2922343 |
| 18 ·5 | 10 54 26 ·71 | 9 ·9554990 | 0 ·5622698 | 0 ·6401000 | 0 ·2980335 |
| 19 ·5 | 11 9 43 ·79 | 9 ·9626026 | 0 ·5865737 | 0 ·6367742 | 0 ·3037131 |
| 20 ·5 | 11 24 46 ·01 | 9 ·9696340 | 0 ·6106513 | 0 ·6332049 | 0 ·3092764 |
| 21 ·5 | 11 39 33 ·75 | 9 ·9765896 | 0 ·6345044 | 0 ·6294039 | 0 ·3147259 |
| 22 ·5 | 11 54 7 ·53 | 9 ·9834690 | 0 ·6581395 | 0 ·6253846 | 0 ·3200668 |
| 23 ·5 | 12 8 27 ·70 | 9 ·9902692 | 0 ·6815563 | 0 ·6211567 | 0 ·3253015 |
| 24 ·5 | 12 22 34 ·49 | 9 ·9969886 | 0 ·7047555 | 0 ·6167336 | [illegible] |
| 25 ·5 | 12 36 28 ·40 | 0 ·0036268 | 0 ·7277430 | 0 ·6121230 | |
| 26 ·5 | 12 50 9 ·76 | 0 ·0101834 | 0 ·7505212 | 0 ·6073370 | |
| 27 ·5 | 13 3 38 ·95 | 0 ·0166578 | 0 ·7730940 | 0 ·6023821 | |
| 28 ·5 | 13 16 56 ·11 | 0 ·0230484 | 0 ·7954590 | 0 ·5972692 | |
| 29 ·5 | 13 30 1 ·79 | 0 ·0293576 | −0 ·8176264 | −0 ·59200 | |

## TABLE I.—*continued.*

| Date. | u | Log. of r | x | y | z |
|---|---|---|---|---|---|
| 1835. | ° ′ ″ | | | | |
| Dec. 29 ·5 | 13 30 1 ·79 | 0 ·0293576 | —0 ·8176264 | —0 ·5920045 | —0 ·3546530 |
| 30 ·5 | 13 42 56 ·14 | 0 ·0355838 | 0 ·8395930 | 0 ·5865984 | 0 ·3592290 |
| 31 ·5 | 13 55 39 ·57 | 0 ·0417286 | 0 ·8613670 | 0 ·5810555 | 0 ·3637218 |
| 1836. | | | | | |
| Jan. 1 ·5 | 14 8 12 ·27 | 0 ·0477918 | 0 ·8829480 | 0 ·5753848 | 0 ·3681338 |
| 2 ·5 | 14 20 34 ·76 | 0 ·0537754 | 0 ·9043446 | 0 ·5695897 | 0 ·3724678 |
| 3 ·5 | 14 32 47 ·08 | 0 ·0596792 | 0 ·9255554 | 0 ·5636797 | 0 ·3767258 |
| 4 ·5 | 14 44 49 ·48 | 0 ·0655036 | 0 ·9465822 | 0 ·5576599 | 0 ·3809095 |
| 5 ·5 | 14 56 42 ·60 | 0 ·0712524 | 0 ·9674383 | 0 ·5515331 | 0 ·3850229 |
| 6 ·5 | 15 8 26 ·05 | 0 ·0769220 | 0 ·9881102 | 0 ·5453091 | 0 ·3890650 |
| 7 ·5 | 15 20 0 ·71 | 0 ·0825180 | 1 ·0086172 | 0 ·5389883 | 0 ·3930407 |
| 8 ·5 | 15 31 26 ·37 | 0 ·0880382 | 1 ·0289507 | 0 ·5325780 | 0 ·3969498 |
| 9 ·5 | 15 42 43 ·65 | 0 ·0934870 | 1 ·0491251 | 0 ·5260810 | 0 ·4007962 |
| 10 ·5 | 15 53 52 ·37 | 0 ·0988622 | 1 ·0691320 | 0 ·5195026 | 0 ·4045793 |
| 11 ·5 | 16 4 52 ·97 | 0 ·1041670 | 1 ·0889800 | 0 ·5128475 | 0 ·4083024 |
| 12 ·5 | 16 15 45 ·44 | 0 ·1094006 | 1 ·1086656 | 0 ·5061187 | 0 ·4119655 |
| 13 ·5 | 16 26 30 ·28 | 0 ·1145670 | 1 ·1282024 | 0 ·4993195 | 0 ·4155723 |
| 14 ·5 | 16 37 7 ·59 | 0 ·1196668 | 1 ·1475900 | 0 ·4924528 | 0 ·4191239 |
| 15 ·5 | 16 47 37 ·41 | 0 ·1246992 | 1 ·1668241 | 0 ·4855227 | 0 ·4226202 |
| 16 ·5 | 16 58 0 ·05 | 0 ·1296674 | 1 ·1859141 | 0 ·4785318 | 0 ·4260641 |
| 17 ·5 | 17 8 15 ·70 | 0 ·1345720 | 1 ·2048622 | 0 ·4714824 | 0 ·4294566 |
| 18 ·5 | 17 18 24 ·46 | 0 ·1394142 | 1 ·2236687 | 0 ·4643785 | 0 ·4327990 |
| 19 ·5 | 17 28 26 ·49 | 0 ·1441950 | 1 ·2423366 | 0 ·4572223 | 0 ·4360926 |
| 20 ·5 | 17 38 21 ·85 | 0 ·1489146 | 1 ·2608652 | 0 ·4500181 | 0 ·4393375 |
| 21 ·5 | 17 48 10 ·98 | 0 ·1535766 | 1 ·2792653 | 0 ·4427634 | 0 ·4425371 |
| 22 ·5 | 17 57 53 ·91 | 0 ·1581812 | 1 ·2975366 | 0 ·4354630 | 0 ·4456916 |
| 23 ·5 | 18 7 30 ·59 | 0 ·1627276 | 1 ·3156733 | 0 ·4281209 | 0 ·4488008 |
| 24 ·5 | 18 17 1 ·38 | 0 ·1672194 | 1 ·3336871 | 0 ·4207380 | 0 ·4518678 |
| 25 ·5 | 18 26 26 ·37 | 0 ·1716568 | 1 ·3515778 | 0 ·4133141 | 0 ·4548926 |
| 26 ·5 | 18 35 45 ·55 | 0 ·1760400 | 1 ·3693435 | 0 ·4058548 | 0 ·4578756 |
| 27 ·5 | 18 44 59 ·12 | 0 ·1803700 | 1 ·3869864 | 0 ·3983598 | 0 ·4608183 |
| 28 ·5 | 18 54 7 ·29 | 0 ·1846496 | 1 ·4045150 | 0 ·3908298 | 0 ·4637230 |
| 29 ·5 | 19 3 10 ·13 | 0 ·1888784 | 1 ·4219270 | 0 ·3832684 | 0 ·4665887 |
| 30 ·5 | 19 12 7 ·73 | 0 ·1930580 | 1 ·4392260 | 0 ·3756758 | 0 ·4694171 |
| 31 ·5 | 19 21 0 ·19 | 0 ·1971884 | 1 ·4564090 | 0 ·3680542 | 0 ·4722084 |
| Feb. 1 ·5 | 19 29 47 ·70 | 0 ·2012720 | 1 ·4734870 | 0 ·3604040 | 0 ·4749648 |
| 2 ·5 | 19 38 30 ·30 | 0 ·2053086 | 1 ·4904530 | 0 ·3527285 | 0 ·4776857 |
| 3 ·5 | 19 47 8 ·07 | 0 ·2092994 | 1 ·5073140 | 0 ·3450256 | 0 ·4803725 |
| 4 ·5 | 19 55 41 ·13 | 0 ·2132450 | 1 ·5240680 | 0 ·3373003 | 0 ·4830257 |
| 5 ·5 | 20 4 9 ·53 | 0 ·2171468 | 1 ·5407210 | 0 ·3295531 | 0 ·4856463 |
| 6 ·5 | 20 12 33 ·37 | 0 ·2210042 | 1 ·5572660 | 0 ·3217829 | 0 ·4882339 |
| 7 ·5 | 20 20 52 ·99 | 0 ·2248214 | —1 ·5737210 | —0 ·3139910 | —0 ·4907921 |

## TABLE I.—*continued.*

| Date. | u | Log. of r | x | y | z |
|---|---|---|---|---|---|
| 1836. | ° ′ ″ | | | | |
| Feb. 7·5 | 20 20 52·99 | 0·2248214 | —1·5737210 | —0·3139910 | —0·4907921 |
| 8·5 | 20 29 7·99 | 0·2285944 | 1·5900680 | 0·3061834 | 0·4933176 |
| 9·5 | 20 37 18·83 | 0·2323276 | 1·6063210 | 0·2983541 | 0·4958136 |
| 10·5 | 20 45 25·58 | 0·2360212 | 1·6224810 | 0·2905048 | 0·4982807 |
| 11·5 | 20 53 28·15 | 0·2396750 | 1·6385450 | 0·2826437 | 0·5007183 |
| 12·5 | 21 1 26·81 | 0·2432908 | 1·6545200 | 0·2747628 | 0·5031283 |
| 13·5 | 21 9 21·45 | 0·2468684 | 1·6704020 | 0·2668677 | 0·5055107 |
| 14·5 | 21 17 12·17 | 0·2504082 | 1·6861920 | 0·2589599 | 0·5078655 |
| 15·5 | 21 24 59·18 | 0·2539120 | 1·7018960 | 0·2510363 | 0·5101936 |
| 16·5 | 21 32 42·41 | 0·2573796 | 1·7175110 | 0·2431004 | 0·5124952 |
| 17·5 | 21 40 21·83 | 0·2608110 | 1·7330360 | 0·2351553 | 0·5147712 |
| 18·5 | 21 47 57·92 | 0·2642096 | 1·7484860 | 0·2271943 | 0·5170232 |
| 19·5 | 21 55 30·28 | 0·2675730 | 1·7638460 | 0·2192253 | 0·5192495 |
| 20·5 | 22 2 59·18 | 0·2709030 | 1·7791240 | 0·2112468 | 0·5214518 |
| 21·5 | 22 10 24·74 | 0·2742006 | 1·7943220 | 0·2032570 | 0·5236307 |
| 22·5 | 22 17 46·98 | 0·2774660 | 1·8094430 | 0·1952574 | 0·5257862 |
| 23·5 | 22 25 5·86 | 0·2806996 | 1·8244830 | 0·1872502 | 0·5279182 |
| 24·5 | 22 32 21·41 | 0·2839010 | 1·8394410 | 0·1792374 | 0·5300280 |
| 25·5 | 22 39 33·93 | 0·2870734 | 1·8543290 | 0·1712136 | 0·5321165 |
| 26·5 | 22 46 43·20 | 0·2902144 | 1·8691360 | 0·1631855 | 0·5341824 |
| 27·5 | 22 53 49·38 | 0·2933258 | 1·8838690 | 0·1551516 | 0·5362271 |
| 28·5 | 23 0 52·75 | 0·2964100 | 1·8985370 | 0·1471069 | 0·5382521 |
| 29·5 | 23 7 52·89 | 0·2994636 | 1·9131230 | 0·1390603 | 0·5402550 |
| Mar. 1·5 | 23 14 50·21 | 0·3024902 | 1·9276420 | 0·1310079 | 0·5422388 |
| 2·5 | 23 21 44·56 | 0·3054882 | 1·9420870 | 0·1229515 | 0·5442020 |
| 3·5 | 23 28 36·25 | 0·3084602 | 1·9564670 | 0·1148859 | 0·5461461 |
| 4·5 | 23 35 25·06 | 0·3114052 | 1·9707780 | 0·1068224 | 0·5480715 |
| 5·5 | 23 42 11·02 | 0·3143228 | 1·9850160 | 0·0987545 | 0·5499772 |
| 6·5 | 23 48 54·47 | 0·3172162 | 1·9991950 | 0·0906788 | 0·5518650 |
| 7·5 | 23 55 35·07 | 0·3200826 | 2·0133000 | 0·0826053 | 0·5537340 |
| 8·5 | 24 2 13·04 | 0·3229238 | 2·0273360 | 0·0745275 | 0·5555845 |
| 9·5 | 24 8 48·56 | 0·3257418 | 2·0413220 | 0·0664464 | 0·5574191 |
| 10·5 | 24 15 21·51 | 0·3285348 | 2·0552370 | 0·0583611 | 0·5592349 |
| 11·5 | 24 21 51·81 | 0·3313032 | 2·0690850 | 0·0502796 | 0·5610338 |
| 12·5 | 24 28 19·74 | 0·3340486 | 2·0828730 | 0·0421943 | 0·5628160 |
| 13·5 | 24 34 45·27 | 0·3367712 | 2·0966030 | 0·0341058 | 0·5645820 |
| 14·5 | 24 41 8·35 | 0·3394706 | 2·1102700 | 0·0260183 | 0·5663312 |
| 15·5 | 24 47 29·21 | 0·3421488 | 2·1238840 | 0·0179263 | 0·5680652 |
| 16·5 | 24 53 47·56 | 0·3448034 | 2·1374320 | 0·0098370 | 0·5697827 |
| 17·5 | 25 0 3·63 | 0·3474364 | 2·1509200 | —0·0017496 | 0·5714849 |
| 18·5 | 25 6 17·54 | 0·3500484 | —2·1643540 | +0·0063418 | —0·5731712 |

## TABLE I.—*continued.*

| Date. | u | Log. of r | x | y | z |
|---|---|---|---|---|---|
| 1836. | ° ′ ″ | | | | |
| Mar. 18 ·5 | 25 6 17 ·54 | 0 ·3500484 | —2 ·1643540 | +0 ·0063418 | —0 ·573171 |
| 19 ·5 | 25 12 29 ·15 | 0 ·3526392 | 2 ·1777300 | 0 ·0144311 | 0 ·574843 |
| 20 ·5 | 25 18 38 ·55 | 0 ·3552088 | 2 ·1910480 | 0 ·0225203 | 0 ·576499 |
| 21 ·5 | 25 24 45 ·69 | 0 ·3577576 | 2 ·2043100 | 0 ·0306062 | 0 ·578141 |
| 22 ·5 | 25 30 50 ·83 | 0 ·3602870 | 2 ·2175190 | 0 ·0386944 | 0 ·579769 |
| 23 ·5 | 25 36 53 ·88 | 0 ·3627968 | 2 ·2306750 | 0 ·0467840 | 0 ·581381 |
| 24 ·5 | 25 42 54 ·71 | 0 ·3652858 | 2 ·2437780 | 0 ·0548675 | 0 ·582981 |
| 25 ·5 | 25 48 53 ·50 | 0 ·3677556 | 2 ·2568170 | 0 ·0629496 | 0 ·584567 |
| 26 ·5 | 25 54 50 ·43 | 0 ·3702076 | 2 ·2698160 | 0 ·0710352 | 0 ·586139 |
| 27 ·5 | 26 0 45 ·23 | 0 ·3726398 | 2 ·2827560 | 0 ·0791168 | 0 ·587697 |
| 28 ·5 | 26 6 38 ·03 | 0 ·3750534 | 2 ·2956460 | 0 ·0871938 | 0 ·589243 |
| 29 ·5 | 26 12 28 ·86 | 0 ·3774486 | 2 ·3084840 | 0 ·0952698 | 0 ·590774 |
| 30 ·5 | 26 18 18 ·01 | 0 ·3798274 | 2 ·3212790 | 0 ·1033490 | 0 ·592294 |
| 31 ·5 | 26 24 4 ·99 | 0 ·3821934 | —2 ·3340320 | +0 ·1114423 | —0 ·593805 |

## TABLE II.

Containing, for each Mean Midnight at Greenwich (Astronomical time) from August 1, 1835, to March 31, 1836, the Sun's True Geocentric co-ordinates (X, Y, Z,); X, being measured on a line passing through the True Vernal Equinoctial point of the date; Y, on a line in the plane of the Equator, and perpendicular to the direction of X; and Z, perpendicular to the plane of the Equator, towards the North.

| Date. | X | Y | Z |
|---|---|---|---|
| 1835. | | | |
| Aug. 1 ·5 | —0 ·6377144 | +0 ·7239212 | +0 ·3141959 |
| 2 ·5 | 0 ·6507172 | 0 ·7139433 | 0 ·3098651 |
| 3 ·5 | 0 ·6635348 | 0 ·7037629 | 0 ·3054467 |
| 4 ·5 | 0 ·6761640 | 0 ·6933840 | 0 ·3009422 |
| 5 ·5 | 0 ·6886010 | 0 ·6828106 | 0 ·2963532 |
| 6 ·5 | 0 ·7008426 | 0 ·6720445 | 0 ·2916807 |
| 7 ·5 | 0 ·7128858 | 0 ·6610891 | 0 ·2869258 |
| 8 ·5 | 0 ·7247270 | 0 ·6499469 | 0 ·2820903 |
| 9 ·5 | 0 ·7363624 | 0 ·6386212 | 0 ·2771750 |
| 10 ·5 | 0 ·7477904 | 0 ·6271152 | 0 ·2721814 |
| 11 ·5 | 0 ·7590069 | 0 ·6154303 | 0 ·2671100 |
| 12 ·5 | 0 ·7700086 | 0 ·6035713 | 0 ·2619630 |
| 13 ·5 | 0 ·7807926 | 0 ·5915402 | 0 ·2567409 |
| 14 ·5 | 0 ·7913554 | 0 ·5793399 | 0 ·2514459 |
| 15 ·5 | 0 ·8016942 | 0 ·5669735 | 0 ·2460787 |
| 16 ·5 | 0 ·8118056 | 0 ·5544446 | 0 ·2406408 |
| 17 ·5 | 0 ·8216860 | 0 ·5417562 | 0 ·2351336 |
| 18 ·5 | 0 ·8313320 | 0 ·5289113 | 0 ·2295588 |
| 19 ·5 | 0 ·8407414 | 0 ·5159127 | 0 ·2239171 |
| 20 ·5 | 0 ·8499097 | 0 ·5027664 | 0 ·2182115 |
| 21 ·5 | 0 ·8588338 | 0 ·4894753 | 0 ·2124431 |
| 22 ·5 | 0 ·8675108 | 0 ·4760423 | 0 ·2066131 |
| 23 ·5 | 0 ·8759393 | 0 ·4624726 | 0 ·2007236 |
| 24 ·5 | 0 ·8841147 | 0 ·4487694 | 0 ·1947763 |
| 25 ·5 | 0 ·8920348 | 0 ·4349377 | 0 ·1887731 |
| 26 ·5 | 0 ·8996971 | 0 ·4209812 | 0 ·1827156 |
| 27 ·5 | 0 ·9070998 | 0 ·4069035 | 0 ·1766055 |
| 28 ·5 | 0 ·9142407 | 0 ·3927093 | 0 ·1704449 |
| 29 ·5 | 0 ·9211173 | 0 ·3784028 | 0 ·1642355 |
| 30 ·5 | 0 ·9277274 | 0 ·3639887 | 0 ·1579793 |
| 31 ·5 | —0 ·9340702 | +0 ·3494706 | +0 ·1516782 |

## TABLE II.—*continued.*

| Date. | X | Y | Z |
|---|---|---|---|
| 1835. | | | |
| Aug. 31 ·5 | −0 ·9340702 | +0 ·3494706 | +0 ·1516782 |
| Sep. 1 ·5 | 0 ·9401430 | 0 ·3348529 | 0 ·1453338 |
| 2 ·5 | 0 ·9459447 | 0 ·3201410 | 0 ·1389485 |
| 3 ·5 | 0 ·9514735 | 0 ·3053374 | 0 ·1325236 |
| 4 ·5 | 0 ·9567283 | 0 ·2904466 | 0 ·1260608 |
| 5 ·5 | 0 ·9617067 | 0 ·2754731 | 0 ·1195620 |
| 6 ·5 | 0 ·9664088 | 0 ·2604215 | 0 ·1130293 |
| 7 ·5 | 0 ·9708324 | 0 ·2452950 | 0 ·1064639 |
| 8 ·5 | 0 ·9749755 | 0 ·2300975 | 0 ·0998680 |
| 9 ·5 | 0 ·9788376 | 0 ·2148339 | 0 ·0932431 |
| 10 ·5 | 0 ·9824170 | 0 ·1995069 | 0 ·0865909 |
| 11 ·5 | 0 ·9857127 | 0 ·1841211 | 0 ·0799130 |
| 12 ·5 | 0 ·9887233 | 0 ·1686809 | 0 ·0732117 |
| 13 ·5 | 0 ·9914467 | 0 ·1531899 | 0 ·0664882 |
| 14 ·5 | 0 ·9938820 | 0 ·1376537 | 0 ·0597451 |
| 15 ·5 | 0 ·9960284 | 0 ·1220750 | 0 ·0529836 |
| 16 ·5 | 0 ·9978838 | 0 ·1064592 | 0 ·0462060 |
| 17 ·5 | 0 ·9994476 | 0 ·0908113 | 0 ·0394144 |
| 18 ·5 | 1 ·0007185 | 0 ·0751365 | 0 ·0326112 |
| 19 ·5 | 1 ·0016956 | 0 ·0594383 | 0 ·0257979 |
| 20 ·5 | 1 ·0023781 | 0 ·0437224 | 0 ·0189768 |
| 21 ·5 | 1 ·0027662 | 0 ·0279936 | 0 ·0121501 |
| 22 ·5 | 1 ·0028587 | +0 ·0122569 | +0 ·0053200 |
| 23 ·5 | 1 ·0026553 | −0 ·0034839 | −0 ·0015119 |
| 24 ·5 | 1 ·0021567 | 0 ·0192232 | 0 ·0083432 |
| 25 ·5 | 1 ·0013618 | 0 ·0349567 | 0 ·0151719 |
| 26 ·5 | 1 ·0002713 | 0 ·0506792 | 0 ·0219959 |
| 27 ·5 | 0 ·9988861 | 0 ·0663847 | 0 ·0288126 |
| 28 ·5 | 0 ·9972056 | 0 ·0820709 | 0 ·0356207 |
| 29 ·5 | 0 ·9952314 | 0 ·0977301 | 0 ·0424172 |
| 30 ·5 | 0 ·9929635 | 0 ·1133602 | 0 ·0492011 |
| Oct. 1 ·5 | 0 ·9904031 | 0 ·1289545 | 0 ·0559695 |
| 2 ·5 | 0 ·9875505 | 0 ·1445099 | 0 ·0627209 |
| 3 ·5 | 0 ·9844073 | 0 ·1600214 | 0 ·0694533 |
| 4 ·5 | 0 ·9809734 | 0 ·1754841 | 0 ·0761646 |
| 5 ·5 | 0 ·9772506 | 0 ·1908938 | 0 ·0828530 |
| 6 ·5 | 0 ·9732391 | 0 ·2062490 | 0 ·0895174 |
| 7 ·5 | 0 ·9689400 | 0 ·2215423 | 0 ·0961551 |
| 8 ·5 | 0 ·9643546 | 0 ·2367707 | 0 ·1027644 |
| 9 ·5 | 0 ·9594834 | 0 ·2519284 | 0 ·1093433 |
| 10 ·5 | −0 ·9543277 | −0 ·2670131 | −0 ·1158903 |

## TABLE II.—*continued.*

| Date. | X | Y | Z |
|---|---|---|---|
| 1835. | | | |
| Oct. 10 ·5 | —0 ·9543277 | —0 ·2670131 | —0 ·1158903 |
| 11 ·5 | 0 ·9488880 | 0 ·2820198 | 0 ·1224035 |
| 12 ·5 | 0 ·9431659 | 0 ·2969437 | 0 ·1288809 |
| 13 ·5 | 0 ·9371623 | 0 ·3117803 | 0 ·1353204 |
| 14 ·5 | 0 ·9308786 | 0 ·3265255 | 0 ·1417202 |
| 15 ·5 | 0 ·9243160 | 0 ·3411742 | 0 ·1480782 |
| 16 ·5 | 0 ·9174755 | 0 ·3557214 | 0 ·1543921 |
| 17 ·5 | 0 ·9103593 | 0 ·3701632 | 0 ·1606602 |
| 18 ·5 | 0 ·9029685 | 0 ·3844938 | 0 ·1668801 |
| 19 ·5 | 0 ·8953061 | 0 ·3987093 | 0 ·1730500 |
| 20 ·5 | 0 ·8873732 | 0 ·4128050 | 0 ·1791678 |
| 21 ·5 | 0 ·8791725 | 0 ·4267767 | 0 ·1852318 |
| 22 ·5 | 0 ·8707056 | 0 ·4406199 | 0 ·1912399 |
| 23 ·5 | 0 ·8619757 | 0 ·4543289 | 0 ·1971897 |
| 24 ·5 | 0 ·8529850 | 0 ·4679004 | 0 ·2030800 |
| 25 ·5 | 0 ·8437366 | 0 ·4813287 | 0 ·2089085 |
| 26 ·5 | 0 ·8342334 | 0 ·4946128 | 0 ·2146737 |
| 27 ·5 | 0 ·8244780 | 0 ·5077449 | 0 ·2203735 |
| 28 ·5 | 0 ·8144746 | 0 ·5207219 | 0 ·2260058 |
| 29 ·5 | 0 ·8042254 | 0 ·5335404 | 0 ·2315694 |
| 30 ·5 | 0 ·7937343 | 0 ·5461961 | 0 ·2370624 |
| 31 ·5 | 0 ·7830035 | 0 ·5586856 | 0 ·2424831 |
| Nov. 1 ·5 | 0 ·7720366 | 0 ·5710053 | 0 ·2478301 |
| 2 ·5 | 0 ·7608375 | 0 ·5831521 | 0 ·2531021 |
| 3 ·5 | 0 ·7494084 | 0 ·5951215 | 0 ·2582969 |
| 4 ·5 | 0 ·7377541 | 0 ·6069100 | 0 ·2634133 |
| 5 ·5 | 0 ·7258759 | 0 ·6185154 | 0 ·2684502 |
| 6 ·5 | 0 ·7137773 | 0 ·6299339 | 0 ·2734059 |
| 7 ·5 | 0 ·7014629 | 0 ·6411615 | 0 ·2782789 |
| 8 ·5 | 0 ·6889342 | 0 ·6521953 | 0 ·2830678 |
| 9 ·5 | 0 ·6761963 | 0 ·6630313 | 0 ·2877708 |
| 10 ·5 | 0 ·6632517 | 0 ·6736663 | 0 ·2923865 |
| 11 ·5 | 0 ·6501038 | 0 ·6840969 | 0 ·2969137 |
| 12 ·5 | 0 ·6367569 | 0 ·6943192 | 0 ·30 |
| 13 ·5 | 0 ·6232138 | 0 ·7043302 | 0 |
| 14 ·5 | 0 ·6094795 | 0 ·7141259 | |
| 15 ·5 | 0 ·5955570 | 0 ·7237032 | |
| 16 ·5 | 0 ·5814503 | 0 ·7330599 | |
| 17 ·5 | 0 ·5671633 | 0 ·7421914 | |
| 18 ·5 | 0 ·5527009 | 0 ·7510947 | |
| 19 ·5 | —0 ·5380680 | —0 ·7597662 | |

## TABLE II.—*continued.*

| Date. | X | Y | Z |
|---|---|---|---|
| 1835. | | | |
| Aug. 31 ·5 | −0 ·9340702 | +0 ·3494706 | +0 ·1516782 |
| Sep. 1 ·5 | 0 ·9401430 | 0 ·3348529 | 0 ·1453338 |
| 2 ·5 | 0 ·9459447 | 0 ·3201410 | 0 ·1389485 |
| 3 ·5 | 0 ·9514735 | 0 ·3053374 | 0 ·1325236 |
| 4 ·5 | 0 ·9567283 | 0 ·2904466 | 0 ·1260608 |
| 5 ·5 | 0 ·9617067 | 0 ·2754731 | 0 ·1195620 |
| 6 ·5 | 0 ·9664088 | 0 ·2604215 | 0 ·1130293 |
| 7 ·5 | 0 ·9708324 | 0 ·2452950 | 0 ·1064639 |
| 8 ·5 | 0 ·9749755 | 0 ·2300975 | 0 ·0998680 |
| 9 ·5 | 0 ·9788376 | 0 ·2148339 | 0 ·0932431 |
| 10 ·5 | 0 ·9824170 | 0 ·1995069 | 0 ·0865909 |
| 11 ·5 | 0 ·9857127 | 0 ·1841211 | 0 ·0799130 |
| 12 ·5 | 0 ·9887233 | 0 ·1686809 | 0 ·0732117 |
| 13 ·5 | 0 ·9914467 | 0 ·1531899 | 0 ·0664882 |
| 14 ·5 | 0 ·9938820 | 0 ·1376537 | 0 ·0597451 |
| 15 ·5 | 0 ·9960284 | 0 ·1220750 | 0 ·0529836 |
| 16 ·5 | 0 ·9978838 | 0 ·1064592 | 0 ·0462060 |
| 17 ·5 | 0 ·9994476 | 0 ·0908113 | 0 ·0394144 |
| 18 ·5 | 1 ·0007185 | 0 ·0751365 | 0 ·0326112 |
| 19 ·5 | 1 ·0016956 | 0 ·0594383 | 0 ·0257979 |
| 20 ·5 | 1 ·0023781 | 0 ·0437224 | 0 ·0189768 |
| 21 ·5 | 1 ·0027662 | 0 ·0279936 | 0 ·0121501 |
| 22 ·5 | 1 ·0028587 | +0 ·0122569 | +0 ·0053200 |
| 23 ·5 | 1 ·0026553 | −0 ·0034839 | −0 ·0015119 |
| 24 ·5 | 1 ·0021567 | 0 ·0192232 | 0 ·0083432 |
| 25 ·5 | 1 ·0013618 | 0 ·0349567 | 0 ·0151719 |
| 26 ·5 | 1 ·0002713 | 0 ·0506792 | 0 ·0219959 |
| 27 ·5 | 0 ·9988861 | 0 ·0663847 | 0 ·0288126 |
| 28 ·5 | 0 ·9972056 | 0 ·0820709 | 0 ·0356207 |
| 29 ·5 | 0 ·9952314 | 0 ·0977301 | 0 ·0424172 |
| 30 ·5 | 0 ·9929635 | 0 ·1133602 | 0 ·0492011 |
| Oct. 1 ·5 | 0 ·9904031 | 0 ·1289545 | 0 ·0559695 |
| 2 ·5 | 0 ·9875505 | 0 ·1445099 | 0 ·0627209 |
| 3 ·5 | 0 ·9844073 | 0 ·1600214 | 0 ·0694533 |
| 4 ·5 | 0 ·9809734 | 0 ·1754841 | 0 ·0761646 |
| 5 ·5 | 0 ·9772506 | 0 ·1908938 | 0 ·0828530 |
| 6 ·5 | 0 ·9732391 | 0 ·2062490 | 0 ·0895174 |
| 7 ·5 | 0 ·9689400 | 0 ·2215423 | 0 ·0961551 |
| 8 ·5 | 0 ·9643546 | 0 ·2367707 | 0 ·1027644 |
| 9 ·5 | 0 ·9594834 | 0 ·2519284 | 0 ·1093433 |
| 10 ·5 | −0 ·9543277 | −0 ·2670131 | −0 ·1158903 |

## TABLE II.—*continued.*

| Date. | X | Y | Z |
|---|---|---|---|
| 1835. | | | |
| ct. 10 ·5 | —0 ·9543277 | —0 ·2670131 | —0 ·1158903 |
| 11 ·5 | 0 ·9488880 | 0 ·2820198 | 0 ·1224035 |
| 12 ·5 | 0 ·9431659 | 0 ·2969437 | 0 ·1288809 |
| 13 ·5 | 0 ·9371623 | 0 ·3117803 | 0 ·1353204 |
| 14 ·5 | 0 ·9308786 | 0 ·3265255 | 0 ·1417202 |
| 15 ·5 | 0 ·9243160 | 0 ·3411742 | 0 ·1480782 |
| 16 ·5 | 0 ·9174755 | 0 ·3557214 | 0 ·1543921 |
| 17 ·5 | 0 ·9103593 | 0 ·3701632 | 0 ·1606602 |
| 18 ·5 | 0 ·9029685 | 0 ·3844938 | 0 ·1668801 |
| 19 ·5 | 0 ·8953061 | 0 ·3987093 | 0 ·1730500 |
| 20 ·5 | 0 ·8873732 | 0 ·4128050 | 0 ·1791678 |
| 21 ·5 | 0 ·8791725 | 0 ·4267767 | 0 ·1852318 |
| 22 ·5 | 0 ·8707056 | 0 ·4406199 | 0 ·1912399 |
| 23 ·5 | 0 ·8619757 | 0 ·4543289 | 0 ·1971897 |
| 24 ·5 | 0 ·8529850 | 0 ·4679004 | 0 ·2030800 |
| 25 ·5 | 0 ·8437366 | 0 ·4813287 | 0 ·2089085 |
| 26 ·5 | 0 ·8342334 | 0 ·4946128 | 0 ·2146737 |
| 27 ·5 | 0 ·8244780 | 0 ·5077449 | 0 ·2203735 |
| 28 ·5 | 0 ·8144746 | 0 ·5207219 | 0 ·2260058 |
| 29 ·5 | 0 ·8042254 | 0 ·5335404 | 0 ·2315694 |
| 30 ·5 | 0 ·7937343 | 0 ·5461961 | 0 ·2370624 |
| 31 ·5 | 0 ·7830035 | 0 ·5586856 | 0 ·2424831 |
| ov. 1 ·5 | 0 ·7720366 | 0 ·5710053 | 0 ·2478301 |
| 2 ·5 | 0 ·7608375 | 0 ·5831521 | 0 ·2531021 |
| 3 ·5 | 0 ·7494084 | 0 ·5951215 | 0 ·2582969 |
| 4 ·5 | 0 ·7377541 | 0 ·6069100 | 0 ·2634133 |
| 5 ·5 | 0 ·7258759 | 0 ·6185154 | 0 ·2684502 |
| 6 ·5 | 0 ·7137773 | 0 ·6299339 | 0 ·2734059 |
| 7 ·5 | 0 ·7014629 | 0 ·6411615 | 0 ·2782789 |
| 8 ·5 | 0 ·6889342 | 0 ·6521953 | 0 ·2830678 |
| 9 ·5 | 0 ·6761963 | 0 ·6630313 | 0 ·2877708 |
| 10 ·5 | 0 ·6632517 | 0 ·6736663 | 0 ·2923865 |
| 11 ·5 | 0 ·6501038 | 0 ·6840969 | 0 ·2969137 |
| 12 ·5 | 0 ·6367569 | 0 ·6943192 | 0 ·3013504 |
| 13 ·5 | 0 ·6232138 | 0 ·7043302 | 0 ·3056957 |
| 14 ·5 | 0 ·6094795 | 0 ·7141259 | 0 ·3099473 |
| 15 ·5 | 0 ·5955570 | 0 ·7237032 | 0 ·3141040 |
| 16 ·5 | 0 ·5814503 | 0 ·7330599 | 0 ·3181650 |
| 17 ·5 | 0 ·5671633 | 0 ·7421914 | 0 ·3221281 |
| 18 ·5 | 0 ·5527009 | 0 ·7510947 | 0 ·3259921 |
| 19 ·5 | —0 ·5380680 | —0 ·7597662 | —0 ·3297556 |

## TABLE II.—*continued.*

| Date. | X | Y | Z |
|---|---|---|---|
| 1835. | | | |
| Nov. 19 ·5 | —0 ·5380680 | —0 ·7597662 | —0 ·3297556 |
| 20 ·5 | 0 ·5232679 | 0 ·7682038 | 0 ·3334175 |
| 21 ·5 | 0 ·5083063 | 0 ·7764042 | 0 ·3369766 |
| 22 ·5 | 0 ·4931886 | 0 ·7843640 | 0 ·3404311 |
| 23 ·5 | 0 ·4779192 | 0 ·7920813 | 0 ·3437806 |
| 24 ·5 | 0 ·4625022 | 0 ·7995539 | 0 ·3470239 |
| 25 ·5 | 0 ·4469443 | 0 ·8067783 | 0 ·3501597 |
| 26 ·5 | 0 ·4312499 | 0 ·8137524 | 0 ·3531868 |
| 27 ·5 | 0 ·4154234 | 0 ·8204754 | 0 ·3561047 |
| 28 ·5 | 0 ·3994705 | 0 ·8269446 | 0 ·3589124 |
| 29 ·5 | 0 ·3833962 | 0 ·8331580 | 0 ·3616093 |
| 30 ·5 | 0 ·3672041 | 0 ·8391143 | 0 ·3641943 |
| Dec. 1 ·5 | 0 ·3509002 | 0 ·8448118 | 0 ·3666671 |
| 2 ·5 | 0 ·3344888 | 0 ·8502491 | 0 ·3690266 |
| 3 ·5 | 0 ·3179752 | 0 ·8554240 | 0 ·3712725 |
| 4 ·5 | 0 ·3013635 | 0 ·8603357 | 0 ·3734042 |
| 5 ·5 | 0 ·2846594 | 0 ·8649822 | 0 ·3754208 |
| 6 ·5 | 0 ·2678671 | 0 ·8693622 | 0 ·3773217 |
| 7 ·5 | 0 ·2509927 | 0 ·8734741 | 0 ·3791064 |
| 8 ·5 | 0 ·2340384 | 0 ·8773168 | 0 ·3807744 |
| 9 ·5 | 0 ·2170117 | 0 ·8808888 | 0 ·3823249 |
| 10 ·5 | 0 ·1999168 | 0 ·8841886 | 0 ·3837572 |
| 11 ·5 | 0 ·1827584 | 0 ·8872146 | 0 ·3850708 |
| 12 ·5 | 0 ·1655416 | 0 ·8899654 | 0 ·3862649 |
| 13 ·5 | 0 ·1482738 | 0 ·8924400 | 0 ·3873390 |
| 14 ·5 | 0 ·1309573 | 0 ·8946376 | 0 ·3882928 |
| 15 ·5 | 0 ·1135992 | 0 ·8965570 | 0 ·3891256 |
| 16 ·5 | 0 ·0962042 | 0 ·8981975 | 0 ·3898372 |
| 17 ·5 | 0 ·0787781 | 0 ·8995575 | 0 ·3904274 |
| 18 ·5 | 0 ·0613261 | 0 ·9006370 | 0 ·3908958 |
| 19 ·5 | 0 ·0438550 | 0 ·9014350 | 0 ·3912420 |
| 20 ·5 | 0 ·0263694 | 0 ·9019513 | 0 ·3914662 |
| 21 ·5 | —0 ·0088756 | 0 ·9021856 | 0 ·3915681 |
| 22 ·5 | +0 ·0086187 | 0 ·9021381 | 0 ·3915477 |
| 23 ·5 | 0 ·0261103 | 0 ·9018086 | 0 ·3914051 |
| 24 ·5 | 0 ·0435920 | 0 ·9011976 | 0 ·3911402 |
| 25 ·5 | 0 ·0610586 | 0 ·9003058 | 0 ·3907531 |
| 26 ·5 | 0 ·0785044 | 0 ·8991338 | 0 ·3902444 |
| 27 ·5 | 0 ·0959239 | 0 ·8976816 | 0 ·3896141 |
| 28 ·5 | 0 ·1133131 | 0 ·8959504 | 0 ·3888627 |
| 29 ·5 | +0 ·1306663 | —0 ·8939408 | —0 ·3879904 |

## TABLE II.—*continued.*

| Date. | X | Y | Z |
|---|---|---|---|
| 1835. | | | |
| Dec. 29 ·5 | +0 ·1306663 | —0 ·8939408 | —0 ·3879904 |
| 30 ·5 | 0 ·1479764 | 0 ·8916536 | 0 ·3869975 |
| 31 ·5 | 0 ·1652420 | 0 ·8890896 | 0 ·3858847 |
| 1836. | | | |
| Jan. 1 ·5 | 0 ·1824538 | 0 ·8862483 | 0 ·3846513 |
| 2 ·5 | 0 ·1996086 | 0 ·8831344 | 0 ·3832999 |
| 3 ·5 | 0 ·2167012 | 0 ·8797475 | 0 ·3818298 |
| 4 ·5 | 0 ·2337263 | 0 ·8760878 | 0 ·3802417 |
| 5 ·5 | 0 ·2506797 | 0 ·8721565 | 0 ·3785354 |
| 6 ·5 | 0 ·2675558 | 0 ·8679550 | 0 ·3767122 |
| 7 ·5 | 0 ·2843501 | 0 ·8634839 | 0 ·3747721 |
| 8 ·5 | 0 ·3010571 | 0 ·8587450 | 0 ·3727154 |
| 9 ·5 | 0 ·3176716 | 0 ·8537391 | 0 ·3705428 |
| 10 ·5 | 0 ·3341886 | 0 ·8484678 | 0 ·3682549 |
| 11 ·5 | 0 ·3506041 | 0 ·8429315 | 0 ·3658521 |
| 12 ·5 | 0 ·3669118 | 0 ·8371324 | 0 ·3633350 |
| 13 ·5 | 0 ·3831065 | 0 ·8310725 | 0 ·3607048 |
| 14 ·5 | 0 ·3991837 | 0 ·8247514 | 0 ·3579612 |
| 15 ·5 | 0 ·4151367 | 0 ·8181733 | 0 ·3551061 |
| 16 ·5 | 0 ·4309614 | 0 ·8113392 | 0 ·3521401 |
| 17 ·5 | 0 ·4466519 | 0 ·8042515 | 0 ·3490642 |
| 18 ·5 | 0 ·4622034 | 0 ·7969121 | 0 ·3458791 |
| 19 ·5 | 0 ·4776097 | 0 ·7893248 | 0 ·3425862 |
| 20 ·5 | 0 ·4928658 | 0 ·7814911 | 0 ·3391866 |
| 21 ·5 | 0 ·5079681 | 0 ·7734146 | 0 ·3356814 |
| 22 ·5 | 0 ·5229109 | 0 ·7650978 | 0 ·3320718 |
| 23 ·5 | 0 ·5376908 | 0 ·7565431 | 0 ·3283588 |
| 24 ·5 | 0 ·5523017 | 0 ·7477544 | 0 ·3245443 |
| 25 ·5 | 0 ·5667400 | 0 ·7387340 | 0 ·3206292 |
| 26 ·5 | 0 ·5810008 | 0 ·7294867 | 0 ·3166155 |
| 27 ·5 | 0 ·5950812 | 0 ·7200125 | 0 ·3125034 |
| 28 ·5 | 0 ·6089770 | 0 ·7103177 | 0 ·3082956 |
| 29 ·5 | 0 ·6226830 | 0 ·7004046 | 0 ·3039931 |
| 30 ·5 | 0 ·6361972 | 0 ·6902761 | 0 ·2995972 |
| 31 ·5 | 0 ·6495148 | 0 ·6799352 | 0 ·2951092 |
| Feb. 1 ·5 | 0 ·6626323 | 0 ·6693855 | 0 ·2905308 |
| 2 ·5 | 0 ·6755458 | 0 ·6586305 | 0 ·2858629 |
| 3 ·5 | 0 ·6882509 | 0 ·6476734 | 0 ·2811075 |
| 4 ·5 | 0 ·7007469 | 0 ·6365163 | 0 ·2762656 |
| 5 ·5 | 0 ·7130268 | 0 ·6251638 | 0 ·2713381 |
| 6 ·5 | 0 ·7250890 | 0 ·6136183 | 0 ·2663271 |
| 7 ·5 | +0 ·7369287 | —0 ·6018841 | —0 ·2612341 |

TABLE II.—*continued.*

| Date. | X | Y | Z |
|---|---|---|---|
| 1836. | | | |
| Feb. 7·5 | +0·7369287 | −0·6018841 | −0·2612341 |
| 8·5 | 0·7485434 | 0·5899637 | 0·2560599 |
| 9·5 | 0·7599287 | 0·5778589 | 0·2508063 |
| 10·5 | 0·7710818 | 0·5655759 | 0·2454750 |
| 11·5 | 0·7819977 | 0·5531174 | 0·2400677 |
| 12·5 | 0·7926742 | 0·5404874 | 0·2345861 |
| 13·5 | 0·8031068 | 0·5276899 | 0·2290318 |
| 14·5 | 0·8132926 | 0·5147293 | 0·2234068 |
| 15·5 | 0·8232278 | 0·5016092 | 0·2177124 |
| 16·5 | 0·8329091 | 0·4883346 | 0·2119510 |
| 17·5 | 0·8423340 | 0·4749097 | 0·2061244 |
| 18·5 | 0·8514993 | 0·4613391 | 0·2002344 |
| 19·5 | 0·8604026 | 0·4476267 | 0·1942829 |
| 20·5 | 0·8690409 | 0·4337777 | 0·1882717 |
| 21·5 | 0·8774127 | 0·4197970 | 0·1822038 |
| 22·5 | 0·8855150 | 0·4056887 | 0·1760802 |
| 23·5 | 0·8933456 | 0·3914576 | 0·1699033 |
| 24·5 | 0·9009036 | 0·3771077 | 0·1636751 |
| 25·5 | 0·9081862 | 0·3626450 | 0·1573979 |
| 26·5 | 0·9151928 | 0·3480724 | 0·1510729 |
| 27·5 | 0·9219204 | 0·3333960 | 0·1447036 |
| 28·5 | 0·9283680 | 0·3186195 | 0·1382896 |
| 29·5 | 0·9345352 | 0·3037472 | 0·1318348 |
| Mar. 1·5 | 0·9404191 | 0·2887843 | 0·1253406 |
| 2·5 | 0·9460190 | 0·2737349 | 0·1188088 |
| 3·5 | 0·9513338 | 0·2586029 | 0·1122411 |
| 4·5 | 0·9563625 | 0·2433919 | 0·1056393 |
| 5·5 | 0·9611028 | 0·2281080 | 0·0990056 |
| 6·5 | 0·9655541 | 0·2127539 | 0·0923411 |
| 7·5 | 0·9697146 | 0·1973345 | 0·0856490 |
| 8·5 | 0·9735837 | 0·1818541 | 0·0789302 |
| 9·5 | 0·9771600 | 0·1663172 | 0·0721868 |
| 10·5 | 0·9804420 | 0·1507290 | 0·0654212 |
| 11·5 | 0·9834286 | 0·1350940 | 0·0586352 |
| 12·5 | 0·9861185 | 0·1194168 | 0·0518310 |
| 13·5 | 0·9885118 | 0·1037026 | 0·0450106 |
| 14·5 | 0·9906069 | 0·0879563 | 0·0381762 |
| 15·5 | 0·9924031 | 0·0721828 | 0·0313301 |
| 16·5 | 0·9939002 | 0·0563861 | 0·0244738 |
| 17·5 | 0·9950982 | 0·0405740 | 0·0176109 |
| 18·5 | +0·9959961 | −0·0247498 | −0·0107423 |

## TABLE II.—*continued.*

| Date. | X | Y | Z |
|---|---|---|---|
| 1836. | | | |
| Mar. 18 ·5 | +0 ·9959961 | —0 ·0247498 | —0 ·0107423 |
| 19 ·5 | 0 ·9965947 | —0 ·0089170 | —0 ·0038708 |
| 20 ·5 | 0 ·9968940 | +0 ·0069177 | +0 ·0030020 |
| 21 ·5 | 0 ·9968942 | 0 ·0227492 | 0 ·0098734 |
| 22 ·5 | 0 ·9965958 | 0 ·0385728 | 0 ·0167414 |
| 23 ·5 | 0 ·9959996 | 0 ·0543835 | 0 ·0236038 |
| 24 ·5 | 0 ·9951064 | 0 ·0701763 | 0 ·0304584 |
| 25 ·5 | 0 ·9939175 | 0 ·0859477 | 0 ·0373036 |
| 26 ·5 | 0 ·9924335 | 0 ·1016914 | 0 ·0441370 |
| 27 ·5 | 0 ·9906551 | 0 ·1174037 | 0 ·0509567 |
| 28 ·5 | 0 ·9885840 | 0 ·1330796 | 0 ·0577607 |
| 29 ·5 | 0 ·9862208 | 0 ·1487153 | 0 ·0645472 |
| 30 ·5 | 0 ·9835663 | 0 ·1643064 | 0 ·0713143 |
| 31 ·5 | +0 ·9806227 | +0 ·1798484 | +0 ·0780601 |

## TABLE III.

Containing, for Mean Noon at Greenwich, the Heliocentric co-ordinates ($x$ $y$, $y_1$, &c., $z$, $z_1$, &c.) of the Comet and the disturbing Planets; $x$, $x_1$, & measured on a line passing through the Mean Vernal Equinox of January $y$, $y_1$, &c., perpendicular to $x$, $x_1$, &c., in the plane of the Ecliptic ( invariable); and $z$, $z_1$, &c., perpendicular to the plane of the Ecliptic, to North.

| Date. | Heliocentric Co-ordinates of | | | | | |
|---|---|---|---|---|---|---|
| | The Comet. | | | Mercury. | | |
| 1835. | $x$ | $y$ | $z$ | $x_1$ | $y_1$ | |
| Aug. 1 | +0 ·99318 | +1 ·74856 | −0 ·05926 | +0 ·35692 | −0 ·06352 | − |
| 5 | 0 ·99605 | 1 ·68279 | 0 ·04645 | 0 ·33668 | +0 ·05450 | |
| 9 | 0 ·99827 | 1 ·61585 | 0 ·03360 | 0 ·27709 | 0 ·16571 | − |
| 13 | 0 ·99977 | 1 ·54778 | 0 ·02073 | 0 ·17940 | 0 ·25364 | + |
| 17 | 1 ·00052 | 1 ·47856 | −0 ·00786 | +0 ·05418 | 0 ·30220 | |
| 21 | 1 ·00046 | 1 ·40815 | +0 ·00503 | −0 ·07972 | 0 ·30270 | |
| 25 | 0 ·99949 | 1 ·33638 | 0 ·01792 | 0 ·20210 | 0 ·25798 | |
| 29 | 0 ·99752 | 1 ·26322 | 0 ·03079 | 0 ·29857 | 0 ·17949 | |
| Sep. 2 | 0 ·99433 | 1 ·18872 | 0 ·04361 | 0 ·36284 | +0 ·08114 | |
| 6 | 0 ·98992 | 1 ·11270 | 0 ·05638 | 0 ·39447 | −0 ·02482 | |
| 10 | 0 ·98408 | 1 ·03500 | 0 ·06908 | 0 ·39625 | 0 ·12912 | |
| 14 | 0 ·97670 | 0 ·95572 | 0 ·08165 | 0 ·37227 | 0 ·22519 | |
| 18 | 0 ·96745 | 0 ·87462 | 0 ·09409 | 0 ·32692 | 0 ·30845 | + |
| 22 | 0 ·95618 | 0 ·79166 | 0 ·10632 | 0 ·26451 | 0 ·37570 | − |
| 26 | 0 ·94252 | 0 ·70681 | 0 ·11828 | 0 ·18919 | 0 ·42466 | |
| 30 | 0 ·92621 | 0 ·61993 | 0 ·12991 | 0 ·10497 | 0 ·45370 | |
| Oct. 4 | 0 ·90680 | 0 ·53095 | 0 ·14109 | −0 ·01587 | 0 ·46164 | |
| 8 | 0 ·88377 | 0 ·43990 | 0 ·15172 | +0 ·07396 | 0 ·44764 | |
| 12 | 0 ·85647 | 0 ·34673 | 0 ·16162 | 0 ·16005 | 0 ·41133 | |
| 16 | 0 ·82431 | 0 ·25157 | 0 ·17060 | 0 ·23743 | 0 ·35283 | |
| 20 | 0 ·78639 | 0 ·15474 | 0 ·17837 | 0 ·30045 | 0 ·27322 | |
| 24 | 0 ·74170 | +0 ·05655 | 0 ·18461 | 0 ·34263 | 0 ·17469 | |
| 28 | 0 ·68924 | −0 ·04218 | 0 ·18890 | 0 ·35691 | −0 ·06262 | |
| Nov. 1 | 0 ·62786 | 0 ·14032 | 0 ·19075 | 0 ·33638 | +0 ·05541 | |
| 5 | 0 ·55672 | 0 ·23622 | 0 ·18961 | 0 ·27648 | 0 ·16651 | − |
| 9 | 0 ·47529 | 0 ·32763 | 0 ·18496 | 0 ·17853 | 0 ·25419 | + |
| 13 | 0 ·38379 | 0 ·41220 | 0 ·17640 | +0 ·05316 | 0 ·30238 | |
| 17 | 0 ·28356 | 0 ·48727 | 0 ·16380 | −0 ·08074 | 0 ·30252 | |
| 21 | 0 ·17673 | 0 ·55104 | 0 ·14740 | 0 ·20296 | 0 ·25748 | |
| 25 | +0 ·06600 | 0 ·60262 | 0 ·12774 | 0 ·29920 | 0 ·17877 | |
| 29 | −0 ·04613 | −0 ·64230 | +0 ·10554 | −0 ·36320 | +0 ·08033 | + |

## TABLE III.—*continued.*

| Date. | Heliocentric Co-ordinates of | | | | | |
|---|---|---|---|---|---|---|
| | The Comet. | | | Mercury. | | |
| 1835. | $x$ | $y$ | $z$ | $x_1$ | $y_1$ | $z_1$ |
| Nov. 29 | −0 ·04613 | −0 ·64230 | +0 ·10554 | −0 ·36320 | +0 ·08033 | +0 ·03910 |
| Dec. 3 | 0 ·15751 | 0 ·67104 | 0 ·08152 | 0 ·39459 | −0 ·02564 | 0 ·03290 |
| 7 | 0 ·26672 | 0 ·69032 | 0 ·05635 | 0 ·39616 | 0 ·12991 | 0 ·02421 |
| 11 | 0 ·37289 | 0 ·70155 | 0 ·03050 | 0 ·37199 | 0 ·22590 | 0 ·01392 |
| 15 | 0 ·47555 | 0 ·70617 | +0 ·00437 | 0 ·32650 | 0 ·30902 | +0 ·00282 |
| 19 | 0 ·57458 | 0 ·70539 | −0 ·02181 | 0 ·26397 | 0 ·37615 | −0 ·00842 |
| 23 | 0 ·66999 | 0 ·70013 | 0 ·04786 | 0 ·18856 | 0 ·42497 | 0 ·01927 |
| 27 | 0 ·76196 | 0 ·69123 | 0 ·07366 | 0 ·10429 | 0 ·45385 | 0 ·02920 |
| 31 | 0 ·85065 | 0 ·67934 | 0 ·09915 | −0 ·01516 | 0 ·46162 | 0 ·03778 |
| 1836. | | | | | | |
| Jan. 4 | 0 ·93620 | 0 ·66500 | 0 ·12427 | +0 ·07465 | 0 ·44744 | 0 ·04457 |
| 8 | 1 ·01892 | 0 ·64859 | 0 ·14902 | 0 ·16070 | 0 ·41096 | 0 ·04913 |
| 12 | 1 ·09896 | 0 ·63046 | 0 ·17338 | 0 ·23799 | 0 ·35231 | 0 ·05102 |
| 16 | 1 ·17652 | 0 ·61089 | 0 ·19735 | 0 ·30087 | 0 ·27253 | 0 ·04986 |
| 20 | 1 ·25176 | 0 ·59015 | 0 ·22092 | 0 ·34285 | 0 ·17408 | 0 ·04524 |
| 24 | 1 ·32483 | 0 ·56837 | 0 ·24412 | 0 ·35689 | −0 ·06171 | 0 ·03696 |
| 28 | 1 ·39589 | 0 ·54573 | 0 ·26696 | 0 ·33606 | +0 ·05632 | 0 ·02510 |
| Feb. 1 | 1 ·46508 | 0 ·52241 | 0 ·28942 | 0 ·27585 | 0 ·16731 | −0 ·01034 |
| 5 | 1 ·53250 | 0 ·49838 | 0 ·31154 | 0 ·17764 | 0 ·25472 | +0 ·00580 |
| 9 | 1 ·59834 | 0 ·47385 | 0 ·33334 | +0 ·05213 | 0 ·30257 | 0 ·02102 |
| 13 | 1 ·66253 | 0 ·44885 | 0 ·35480 | −0 ·08175 | 0 ·30232 | 0 ·03290 |
| 17 | 1 ·72536 | 0 ·42347 | 0 ·37597 | 0 ·20380 | 0 ·25699 | 0 ·03990 |
| 21 | 1 ·78682 | 0 ·39776 | 0 ·39683 | 0 ·29982 | 0 ·17807 | 0 ·04176 |
| 25 | 1 ·84697 | 0 ·37174 | 0 ·41740 | 0 ·36356 | +0 ·07954 | 0 ·03906 |
| 29 | 1 ·90594 | 0 ·34557 | 0 ·43770 | 0 ·39471 | −0 ·02646 | 0 ·03285 |
| Mar. 4 | 1 ·96372 | 0 ·31911 | 0 ·45774 | 0 ·39606 | 0 ·13068 | 0 ·02413 |
| 8 | 2 ·02041 | 0 ·29241 | 0 ·47753 | 0 ·37173 | 0 ·22658 | 0 ·01383 |
| 12 | 2 ·07601 | 0 ·26564 | 0 ·49705 | 0 ·32608 | 0 ·30960 | +0 ·00275 |
| 16 | 2 ·13074 | 0 ·23875 | 0 ·51636 | 0 ·26344 | 0 ·37658 | −0 ·00850 |
| 20 | 2 ·18443 | 0 ·21175 | 0 ·53544 | 0 ·18794 | 0 ·42526 | 0 ·01934 |
| 24 | 2 ·23723 | 0 ·18459 | 0 ·55428 | 0 ·10363 | 0 ·45398 | 0 ·02927 |
| 28 | 2 ·28929 | 0 ·15747 | 0 ·57293 | −0 ·01448 | 0 ·46159 | 0 ·03785 |
| Apr. 1 | −2 ·34045 | −0 ·13017 | −0 ·59137 | +0 ·07533 | −0 ·44726 | −0 ·04462 |

## TABLE III.—*continued.*

| Date. | Heliocentric Co-ordinates of | | | | | |
|---|---|---|---|---|---|---|
| | Venus. | | | The Earth. | | |
| 1835. | $x_2$ | $y_2$ | $z_2$ | $x_3$ | $y_3$ | $z_3$ |
| Aug. 1 | +0 ·04533 | +0 ·71820 | +0 ·00829 | +0 ·63109 | −0 ·79458 | - |
| 5 | −0 ·03582 | 0 ·71834 | 0 ·01293 | 0 ·68234 | 0 ·75020 | - |
| 9 | 0 ·11652 | 0 ·70932 | 0 ·01742 | 0 ·73053 | 0 ·70243 | - |
| 13 | 0 ·19574 | 0 ·69129 | 0 ·02168 | 0 ·77537 | 0 ·65149 | - |
| 17 | 0 ·27247 | 0 ·66447 | 0 ·02567 | 0 ·81672 | 0 ·59758 | - |
| 21 | 0 ·34572 | 0 ·62917 | 0 ·02934 | 0 ·85436 | 0 ·54094 | - |
| 25 | 0 ·41456 | 0 ·58584 | 0 ·03263 | 0 ·88806 | 0 ·48178 | - |
| 29 | 0 ·47812 | 0 ·53504 | 0 ·03551 | 0 ·91768 | 0 ·42041 | - |
| Sep. 2 | 0 ·53559 | 0 ·47742 | 0 ·03793 | 0 ·94303 | 0 ·35712 | - |
| 6 | 0 ·58622 | 0 ·41371 | 0 ·03986 | 0 ·96405 | 0 ·29220 | - |
| 10 | 0 ·62938 | 0 ·34472 | 0 ·04128 | 0 ·98064 | 0 ·22593 | - |
| 14 | 0 ·66452 | 0 ·27134 | 0 ·04218 | 0 ·99270 | 0 ·15862 | - |
| 18 | 0 ·69120 | 0 ·19451 | 0 ·04255 | 1 ·00010 | 0 ·09056 | - |
| 22 | 0 ·70910 | 0 ·11521 | 0 ·04239 | 1 ·00283 | −0 ·02206 | - |
| 26 | 0 ·71802 | +0 ·03446 | 0 ·04167 | 1 ·00082 | +0 ·04657 | - |
| 30 | 0 ·71783 | −0 ·04673 | 0 ·04043 | 0 ·99412 | 0 ·11497 | - |
| Oct. 4 | 0 ·70856 | 0 ·12734 | 0 ·03868 | 0 ·98272 | 0 ·18278 | - |
| 8 | 0 ·69034 | 0 ·20634 | 0 ·03644 | 0 ·96670 | 0 ·24971 | - |
| 12 | 0 ·66342 | 0 ·28275 | 0 ·03373 | 0 ·94609 | 0 ·31548 | - |
| 16 | 0 ·62817 | 0 ·35560 | 0 ·03061 | 0 ·92098 | 0 ·37976 | - |
| 20 | 0 ·58505 | 0 ·42398 | 0 ·02710 | 0 ·89140 | 0 ·44223 | - |
| 24 | 0 ·53461 | 0 ·48705 | 0 ·02325 | 0 ·85755 | 0 ·50259 | - |
| 28 | 0 ·47750 | 0 ·54405 | 0 ·01912 | 0 ·81956 | 0 ·56050 | - |
| Nov. 1 | 0 ·41443 | 0 ·59428 | 0 ·01476 | 0 ·77764 | 0 ·61569 | - |
| 5 | 0 ·34621 | 0 ·63714 | 0 ·01020 | 0 ·73194 | 0 ·66787 | - |
| 9 | 0 ·27370 | 0 ·67208 | 0 ·00551 | 0 ·68270 | 0 ·71682 | - |
| 13 | 0 ·19779 | 0 ·69869 | +0 ·00075 | 0 ·63010 | 0 ·76229 | - |
| 17 | 0 ·11944 | 0 ·71667 | −0 ·00402 | 0 ·57443 | 0 ·80406 | - |
| 21 | −0 ·03962 | 0 ·72583 | 0 ·00873 | 0 ·51591 | 0 ·84186 | - |
| 25 | +0 ·04068 | 0 ·72606 | 0 ·01333 | 0 ·45486 | 0 ·87553 | - |
| 29 | 0 ·12048 | 0 ·71735 | 0 ·01777 | 0 ·39158 | 0 ·90483 | - |
| Dec. 3 | 0 ·19880 | 0 ·69983 | 0 ·02199 | 0 ·32638 | 0 ·92967 | - |
| 7 | 0 ·27469 | 0 ·67373 | 0 ·02594 | - - | - - | - |
| 11 | 0 ·34722 | 0 ·63937 | 0 ·02958 | 0 ·19150 | 0 ·96554 | - |
| 15 | 0 ·41549 | 0 ·59718 | 0 ·03285 | - - | - - | - |
| 19 | +0 47867 | −0 ·54768 | −0 ·03572 | +0 ·05274 | +0 ·98229 | - |

## TABLE III.—*continued.*

| Date. | Heliocentric Co-ordinates of Venus. | | | Heliocentric Co-ordinates of The Earth. | | |
|---|---|---|---|---|---|---|
| 1835. | $x_2$ | $y_2$ | $z_2$ | $x_3$ | $y_3$ | $z_3$ |
| ec. 19 | +0 ·47867 | −0 ·54768 | −0 ·03572 | +0 ·05274 | +0 ·98229 | - - |
| 23 | 0 ·53598 | 0 ·49147 | 0 ·03814 | - - | - - | - - |
| 27 | 0 ·58672 | 0 ·42923 | 0 ·04011 | −0 ·08707 | 0 ·97942 | - - |
| 31 | 0 ·63027 | 0 ·36173 | 0 ·04159 | - - | - - | - - |
| 1836. | | | | | | |
| an. 4 | 0 ·66610 | 0 ·28980 | 0 ·04257 | 0 ·22505 | 0 ·95711 | - - |
| 8 | 0 ·69376 | 0 ·21432 | 0 ·04300 | - - | - - | - - |
| 12 | 0 ·71290 | 0 ·13621 | 0 ·04291 | 0 ·35860 | 0 ·91584 | - - |
| 16 | 0 ·72326 | −0 ·05641 | 0 ·04229 | - - | - - | - - |
| 20 | 0 ·72470 | +0 ·02408 | 0 ·04115 | 0 ·48511 | 0 ·85631 | - - |
| 28 | 0 ·70084 | 0 ·18316 | 0 ·03739 | 0 ·60191 | 0 ·77976 | - - |
| eb. 5 | 0 ·64230 | 0 ·33320 | 0 ·03176 | 0 ·70677 | 0 ·68788 | - - |
| 13 | 0 ·55190 | 0 ·46670 | 0 ·02457 | 0 ·79781 | 0 ·58241 | - - |
| 21 | 0 ·43399 | 0 ·57690 | 0 ·01613 | 0 ·87315 | 0 ·46544 | - - |
| 29 | 0 ·29435 | 0 ·65822 | −0 ·00690 | 0 ·93141 | 0 ·33944 | - - |
| ar. 8 | +0 ·13990 | 0 ·70643 | +0 ·00268 | 0 ·97165 | 0 ·20691 | - - |
| 16 | −0 ·02161 | 0 ·71899 | 0 ·01214 | 0 ·99316 | +0 ·07032 | - - |
| 24 | 0 ·18203 | 0 ·69510 | 0 ·02097 | 0 ·99561 | −0 ·06767 | - - |
| pr. 1 | −0 ·33317 | +0 ·63592 | +0 ·02873 | −0 ·97911 | −0 ·20428 | - - |

| Date. | Mars. | | | Jupiter. | | |
|---|---|---|---|---|---|---|
| 1835. | $x_4$ | $y_4$ | $z_4$ | $x_5$ | $y_5$ | $z_5$ |
| ug. 5 | −1 ·54181 | −0 ·48934 | +0 ·02664 | +0 ·15810 | +5 ·13050 | −0 ·02150 |
| 13 | 1 ·49982 | 0 ·58556 | 0 ·02356 | - - | - - | - - |
| 21 | 1 ·45104 | 0 ·67914 | 0 ·02037 | +0 ·03617 | 5 ·13854 | 0 ·01868 |
| 29 | 1 ·39553 | 0 ·76959 | 0 ·01706 | - - | - - | - - |
| ep. 6 | 1 ·33355 | 0 ·85641 | 0 ·01369 | −0 ·08574 | 5 ·14375 | 0 ·01601 |
| 14 | 1 ·26523 | 0 ·93918 | 0 ·01027 | - - | - - | - - |
| 22 | 1 ·19078 | 1 ·01744 | 0 ·00679 | 0 ·20774 | 5 ·14600 | 0 ·01318 |
| 30 | 1 ·11045 | 1 ·09064 | +0 ·00331 | - - | - - | - - |
| ct. 8 | 1 ·02452 | 1 ·15838 | −0 ·00022 | 0 ·32959 | 5 ·14553 | 0 ·01050 |
| 16 | 0 ·93338 | 1 ·22017 | 0 ·00375 | - - | - - | - - |
| 24 | −0 ·83739 | −1 ·27562 | −0 ·00728 | −0 ·45124 | +5 ·14209 | −0 ·00766 |

## TABLE III.—*continued.*

| Date. | Heliocentric Co-ordinates of | | | | | |
|---|---|---|---|---|---|---|
| | Mars. | | | Jupiter. | | |
| 1835. | $x_4$ | $y_4$ | $z_4$ | $x_5$ | $y_5$ | $z_5$ |
| Oct. 24 | −0·83739 | −1·27562 | −0·00728 | −0·45124 | +5·14209 | −0·00 |
| Nov. 1 | 0·73690 | 1·32422 | 0·01076 | - - | - - | - |
| 5 | 0·68512 | 1·34586 | 0·01246 | - - | - - | - |
| 9 | 0·63241 | 1·36565 | 0·01414 | 0·57261 | 5·13594 | 0·00 |
| 13 | 0·57881 | 1·38354 | 0·01582 | - - | - - | - |
| 17 | 0·52441 | 1·39949 | 0·01748 | 0·63317 | 5·13181 | 0·00 |
| 21 | 0·46928 | 1·41346 | 0·01912 | - - | - - | - |
| 25 | 0·41348 | 1·45241 | 0·02072 | 0·69365 | 5 12696 | 0·00 |
| 29 | 0·35706 | 1·43526 | 0·02230 | - - | - - | - |
| Dec. 3 | 0·30011 | 1·44301 | 0·02384 | 0·75409 | 5·12135 | −0·00 |
| 7 | 0·24274 | 1·44867 | 0·02536 | - - | - - | - |
| 11 | 0·18500 | 1·45218 | 0·02683 | 0·81442 | 5·11505 | +0·00 |
| 15 | 0·12697 | 1·45347 | 0·02824 | - - | - - | - |
| 19 | 0·06875 | 1·45255 | 0·02961 | - - | - - | - |
| 23 | −0·01043 | 1·44941 | 0·03095 | - - | - - | - |
| 27 | +0·04790 | 1·44401 | 0·03224 | 0·93457 | 5·10047 | 0·0 |
| 31 | 0·10618 | 1·43632 | 0·03348 | - - | - - | - |
| 1836. | | | | | | |
| Jan. 4 | 0·16428 | 1·42636 | 0·03467 | - - | - - | - |
| 8 | 0·22210 | 1·41414 | 0·03580 | - - | - - | - |
| 12 | 0·27955 | 1·39965 | 0·03688 | 1·05436 | 5·08323 | 0·0 |
| 20 | 0·39305 | 1·36386 | 0·03886 | - - | - - | - |
| 28 | 0·50394 | 1·31899 | 0·04055 | 1·17355 | 5·06302 | 0·0 |
| Feb. 5 | 0·61145 | 1·26532 | 0·04199 | - - | - - | - |
| 13 | 0·71474 | 1·20298 | 0·04316 | 1·29205 | 5·04011 | 0·0 |
| 21 | 0·81319 | 1·13235 | 0·04401 | - - | - - | - |
| 29 | 0·90590 | 1·05385 | 0·04452 | 1·41000 | 5·01453 | 0·0 |
| Mar. 8 | 0·99222 | 0·96792 | 0·04477 | - - | - - | - |
| 16 | 1·07152 | 0·87512 | 0·04469 | 1·52700 | 4·98632 | 0· |
| 24 | 1·14319 | 0·77609 | 0·04429 | - - | - - | - |
| Apr. 1 | +1·20670 | −0·67151 | −0·04356 | −1·64327 | +4·95541 | +0· |

## TABLE III.—*continued.*

| Date. | Heliocentric Co-ordinates of | | | | | |
|---|---|---|---|---|---|---|
| | Saturn. | | | The Georgian. | | |
| 1835. | $x_6$ | $y_6$ | $z_6$ | $x_7$ | $y_7$ | $z_7$ |
| Aug. 5 | −8·89774 | −3·88947 | +0·42209 | +17·0573 | −10·4978 | −0·26210 |
| 21 | 8·86645 | 3·97109 | 0·42219 | 17·0899 | 10·4472 | 0·26231 |
| Sep. 6 | 8·83446 | 4·05257 | 0·42224 | 17·1214 | 10·3966 | 0·26251 |
| 22 | 8·80195 | 4·13352 | 0·42226 | 17·1538 | 10·3452 | 0·26272 |
| Oct. 8 | 8·76859 | 4·21415 | 0·42227 | 17·1854 | 10·2941 | 0·26292 |
| 24 | 8·73474 | 4·29447 | 0·42222 | 17·2171 | 10·2431 | 0·26313 |
| Nov. 1 | 8·71738 | 4·33460 | 0·42218 | - - | - - | - - |
| 9 | 8·69981 | 4·37462 | 0·42213 | 17·2484 | 10·1920 | 0·26334 |
| 17 | 8·68210 | 4·41440 | 0·42206 | - - | - - | - - |
| 25 | 8·66423 | 4·45410 | 0·42199 | 17·2795 | 10·1405 | 0·26354 |
| Dec. 11 | 8·62800 | 4·53367 | 0·42180 | 17·3101 | 10·0890 | 0·26374 |
| 27 | 8·59112 | 4·61233 | 0·42167 | 17·3412 | 10·0370 | 0·26395 |
| 1836. | | | | | | |
| Jan. 12 | 8·55342 | 4·69105 | 0·42142 | 17·3724 | 9·9860 | 0·26416 |
| 28 | 8·51530 | 4·76947 | 0·42115 | 17·4028 | 9·9344 | 0·26436 |
| Feb. 13 | 8·47618 | 4·84719 | 0·42086 | 17·4333 | 9·8828 | 0·26457 |
| 29 | 8·43665 | 4·92436 | 0·42057 | 17·4639 | 9·8308 | 0·26478 |
| Mar. 16 | 8·39615 | 5·00138 | 0·42018 | 17·4936 | 9·7787 | 0·26488 |
| Apr. 1 | −8·35526 | −5·07797 | +0·41981 | +17·5235 | −9·7268 | −0·26509 |

## TABLE IV.

Containing, for Greenwich Mean Noon of each fourth day, from Aug. 1, 1835, to April 1, 1836, the united Effects (A) of the attractions of the disturbing Planets upon the Comet in the direction of the co-ordinate $x$, expressed in 10,000,000,000th parts of an unit, and distinguishing the separate Effect of each Planet.

| Date. | Mercury. | Venus. | Earth. | Mars. | Jupiter. | Saturn. | Georgian. | A. |
|---|---|---|---|---|---|---|---|---|
| 1835. | | | | | | | | |
| Aug. 1 | +36848 | + 11611 | + 17620 | −1116 | +196320 | − 8558 | + 97 | +252822 |
| 5 | 42145 | 6705 | 19032 | 1104 | 190031 | 8398 | 90 | 248501 |
| 9 | 41413 | + 1537 | 20367 | 1091 | 183562 | 8232 | 83 | 237639 |
| 13 | 30642 | − 3781 | 21616 | 1077 | 176930 | 8061 | 76 | 216345 |
| 17 | +10536 | 9111 | 22773 | 1061 | 170155 | 7883 | 69 | 185478 |
| 21 | −11180 | 14318 | 23831 | 1042 | 163284 | 7700 | 62 | 152937 |
| 25 | 26320 | 19277 | 24780 | 1021 | 156341 | 7511 | 55 | 127047 |
| 29 | 32794 | 23886 | 25610 | 998 | 149332 | 7314 | 48 | 109998 |
| Sep. 2 | 33032 | 28053 | 26301 | 972 | 142265 | 7109 | 41 | 99441 |
| 6 | 30023 | 31713 | 26831 | 943 | 135164 | 6894 | 33 | 92455 |
| 10 | 25728 | 34806 | 27158 | 911 | 128052 | 6671 | 25 | 87119 |
| 14 | 21124 | 37288 | 27207 | 876 | 120921 | 6437 | 17 | 82420 |
| 18 | 16592 | 39123 | 26818 | 837 | 113761 | 6190 | 9 | 77846 |
| 22 | 12213 | 40286 | 25627 | 795 | 106585 | 5930 | + 1 | 72989 |
| 26 | 7923 | 40762 | 22652 | 748 | 99401 | 5657 | − 7 | 66956 |
| 30 | − 3584 | 40530 | + 14783 | 696 | 92202 | 5367 | 15 | 56793 |
| Oct. 4 | + 996 | 39585 | − 10274 | 639 | 84976 | 5056 | 23 | + 30395 |
| 8 | 6069 | 37916 | 110218 | 575 | 77723 | 4723 | 30 | − 69670 |
| 12 | 11984 | 35512 | 356598 | 503 | 70435 | 4368 | 37 | 314599 |
| 16 | 19294 | 32346 | 185594 | 421 | 63116 | 3986 | 43 | −139980 |
| 20 | 29065 | 28372 | 41067 | 327 | 55773 | 3571 | 50 | + 11451 |
| 24 | 43494 | 23494 | − 2076 | 219 | 48367 | 3118 | 58 | 62896 |
| 28 | 61638 | 17522 | + 9898 | − 93 | 40863 | 2624 | 72 | 92088 |
| Nov. 1 | 62110 | 10080 | 14024 | + 57 | 33326 | 2086 | 88 | 97263 |
| 5 | 49829 | − 397 | 15260 | 239 | 25834 | 1500 | 101 | 89164 |
| 9 | 34105 | + 13233 | 15201 | 459 | 18374 | 866 | 108 | 80398 |
| 13 | +12161 | 34958 | 14462 | 724 | 10939 | − 188 | 102 | 72954 |
| 17 | −10130 | 75992 | 13318 | 1026 | + 3631 | + 517 | 90 | 84264 |
| 21 | 25236 | 163607 | 11907 | 1329 | − 3453 | 1239 | 75 | 149318 |
| 25 | 31375 | + 95881 | 10307 | 1526 | 10273 | 1962 | 61 | + 67967 |
| 29 | 31111 | −379845 | 8563 | 1404 | 16801 | 2668 | 52 | −415174 |
| Dec. 3 | 27607 | 159455 | 6708 | + 721 | 23033 | 3354 | 44 | 199356 |
| 7 | 23508 | 64310 | 4761 | − 487 | 28985 | 4011 | 36 | 108554 |
| 11 | 22283 | 24629 | 2742 | 1721 | 34681 | 4635 | 28 | 75965 |
| 15 | 27377 | − 3809 | + 662 | 2466 | 40156 | 5217 | 19 | 67948 |
| 19 | −29934 | + 9163 | − 1466 | −2652 | − 45427 | + 5760 | − 10 | − 64566 |

## TABLE IV.—*continued.*

| Date. | Mercury. | Venus. | Earth. | Mars. | Jupiter. | Saturn. | Georgian. | A. |
|---|---|---|---|---|---|---|---|---|
| 1835. | | | | | | | | |
| Dec. 19 | —29934 | + 9163 | — 1466 | —2652 | — 45427 | + 5760 | — 10 | — 64566 |
| 23 | 23121 | 18202 | 3630 | 2486 | 50516 | 6266 | — 1 | 55286 |
| 27 | 14508 | 24939 | 5822 | 2172 | 55457 | 6737 | + 8 | 46275 |
| 31 | 7112 | 30130 | 8033 | 1825 | 60285 | 7174 | 17 | 39934 |
| 1836. | | | | | | | | |
| Jan. 4 | — 583 | 34157 | 10251 | 1495 | 65003 | 7577 | 26 | 35572 |
| 8 | + 5756 | 37230 | 12468 | 1198 | 69614 | 7948 | 35 | 32311 |
| 12 | 12401 | 39462 | 14686 | 935 | 74141 | 8288 | 44 | 29567 |
| 16 | 19643 | 40921 | 16909 | 702 | 78607 | 8598 | 52 | 27004 |
| 20 | 27431 | 41656 | 19129 | 495 | 83013 | 8879 | 60 | 24611 |
| 24 | 35007 | 41697 | 21339 | 309 | 87360 | 9132 | 68 | 23104 |
| 28 | 40235 | 41074 | 23544 | — 140 | 91660 | 9359 | 76 | 24600 |
| Feb. 1 | 39220 | 39809 | 25748 | + 14 | 95926 | 9562 | 84 | 32985 |
| 5 | 28021 | 37932 | 27954 | 157 | 100160 | 9740 | 91 | 52173 |
| 9 | + 7558 | 35473 | 30160 | 290 | 104363 | 9894 | 99 | 81209 |
| 13 | —14278 | 32469 | 32359 | 413 | 108544 | 10024 | 106 | 112169 |
| 17 | 29373 | 28959 | 34531 | 529 | 112709 | 10132 | 113 | 136880 |
| 21 | 35787 | 24988 | 36635 | 638 | 116860 | 10217 | 120 | 153319 |
| 25 | 35984 | 20606 | 38612 | 741 | 120999 | 10281 | 127 | 163840 |
| 29 | 32924 | 15869 | 40369 | 838 | 125129 | 10323 | 134 | 171258 |
| Mar. 4 | 28534 | 10837 | 41812 | 930 | 129256 | 10345 | 141 | 177349 |
| 8 | 23802 | 5574 | 42839 | 1017 | 133382 | 10347 | 147 | 182938 |
| 12 | 19136 | + 149 | 43370 | 1098 | 137508 | 10229 | 153 | 188385 |
| 16 | 14651 | — 5367 | 43386 | 1174 | 141637 | 10293 | 159 | 193415 |
| 20 | 10313 | 10901 | 42902 | 1245 | 145769 | 10239 | 165 | 198236 |
| 24 | 6007 | 16378 | 41990 | 1312 | 149910 | 10167 | 171 | 202635 |
| 28 | — 1576 | 21724 | 40748 | 1374 | 154070 | 10078 | 177 | 206489 |
| Apr. 1 | + 3162 | — 26863 | — 39257 | +1430 | —158248 | + 9972 | +182 | —209622 |

## TABLE V.

Containing, for Greenwich Mean Noon of each fourth day, from August 1, 1835, April 1, 1836, the united Effects (B) of the attractions of the disturbing Plane upon the Comet in the direction of the co-ordinate $y$, expressed in 10,000,000,000 parts of an unit, and distinguishing the separate Effect of each Planet.

| Date. | Mercury. | Venus. | Earth. | Mars. | Jupiter. | Saturn. | Georgian. | B. |
|---|---|---|---|---|---|---|---|---|
| 1835. | | | | | | | | |
| Aug. 1 | − 5216 | + 57349 | − 17205 | − 171 | −406607 | − 1181 | +100 | −37293 |
| 5 | + 8207 | 56610 | 15626 | 214 | 374253 | 1251 | 101 | 32642 |
| 9 | 25951 | 55158 | 13876 | 257 | 343563 | 1320 | 102 | 27780 |
| 13 | 43508 | 53098 | 11937 | 299 | 314472 | 1389 | 103 | 23138 |
| 17 | 52882 | 50506 | 9784 | 341 | 286878 | 1458 | 103 | 19497 |
| 21 | 49407 | 47440 | 7386 | 383 | 260718 | 1526 | 104 | 17306 |
| 25 | 36660 | 43938 | 4688 | 424 | 235887 | 1594 | 104 | 1618 |
| 29 | 21620 | 40039 | − 1616 | 464 | 212329 | 1662 | 104 | 1543 |
| Sep. 2 | + 8683 | 35776 | + 1945 | 504 | 189992 | 1729 | 104 | 1457 |
| 6 | − 988 | 31188 | 6180 | 543 | 168775 | 1794 | 103 | 1346 |
| 10 | 7785 | 26320 | 11395 | 582 | 148579 | 1858 | 103 | 1209 |
| 14 | 12466 | 21226 | 18102 | 617 | 129376 | 1921 | 102 | 1049 |
| 18 | 15689 | 15966 | 27247 | 651 | 111145 | 1981 | 101 | 861 |
| 22 | 17922 | 10602 | 40670 | 684 | 93796 | 2038 | 100 | 63 |
| 26 | 19462 | + 5207 | 62251 | 714 | 77242 | 2094 | 99 | − 31 |
| 30 | 20468 | − 150 | 101095 | 741 | 61494 | 2147 | 97 | + 16 |
| Oct. 4 | 20975 | 5395 | 179393 | 765 | 46574 | 2194 | 94 | 103 |
| 8 | 20893 | 10450 | 322598 | 785 | 32398 | 2235 | 91 | 255 |
| 12 | 19957 | 15237 | +142675 | 799 | 18893 | 2269 | 87 | + 85 |
| 16 | 17648 | 19669 | −270096 | 804 | − 6133 | 2294 | 82 | −316 |
| 20 | 13162 | 23651 | 169564 | 800 | + 5794 | 2308 | 77 | 203 |
| 24 | 6516 | 27069 | 88291 | 784 | 16937 | 2306 | 72 | 107 |
| 28 | 4848 | 29767 | 47178 | 747 | 27331 | 2283 | 70 | 57 |
| Nov. 1 | − 6950 | 31491 | 24781 | 684 | 36851 | 2234 | 69 | − 29 |
| 5 | +11045 | 31769 | 11301 | 581 | 45367 | 2154 | 66 | + 10 |
| 9 | 32602 | 29539 | − 2483 | 415 | 52783 | 2034 | 61 | 50 |
| 13 | 44395 | − 21919 | + 3658 | − 154 | 59022 | 1868 | 47 | 831 |
| 17 | 42131 | + 1103 | 8144 | + 256 | 64012 | 1652 | 29 | 1140 |
| 21 | 29800 | 87166 | 11528 | 886 | 67726 | 1386 | + 11 | 1957 |
| 25 | 14477 | 407564 | 14142 | 1803 | 70263 | 1074 | − 6 | 5071 |
| 29 | + 395 | +128198 | 16181 | 2975 | 71763 | 720 | 19 | 2187 |
| Dec. 3 | −11754 | − 31315 | 17773 | 4115 | 72380 | − 330 | 29 | 508 |
| 7 | 23274 | 46031 | 18996 | 4662 | 72280 | + 90 | 38 | 266 |
| 11 | 35285 | 45337 | 19911 | 4269 | 71616 | 531 | 47 | 156 |
| 15 | 42472 | 42287 | 20547 | 3216 | 70524 | 986 | 56 | 104 |
| 19 | −36628 | − 38598 | + 20932 | +2034 | + 69034 | + 1454 | − 64 | + 181 |

## TABLE V.—*continued.*

| Date. | Mercury. | Venus. | Earth. | Mars. | Jupiter. | Saturn. | Georgian. | B. |
|---|---|---|---|---|---|---|---|---|
| 1835. | | | | | | | | |
| )ec. 19 | —36628 | — 38598 | + 20932 | +2034 | + 69034 | + 1454 | — 64 | + 18164 |
| 23 | 28757 | 34561 | 21077 | 1034 | 67152 | 1936 | 72 | 27809 |
| 27 | 25462 | 30235 | 20999 | + 288 | 65009 | 2426 | 79 | 32946 |
| 31 | 24555 | 25650 | 20706 | — 244 | 62721 | 2919 | 86 | 35811 |
| 1836. | | | | | | | | |
| an. 4 | 24285 | 20837 | 20205 | 619 | 60267 | 3416 | 93 | 38054 |
| 8 | 23845 | 15830 | 19502 | 884 | 57617 | 3917 | 99 | 40378 |
| 12 | 22682 | 10679 | 18605 | 1073 | 54823 | 4418 | 105 | 43307 |
| 16 | 20136 | 5431 | 17524 | 1208 | 51927 | 4919 | 110 | 47485 |
| 20 | 15257 | — 140 | 16268 | 1305 | 48925 | 5419 | 115 | 53795 |
| 24 | — 6764 | + 5132 | 14854 | 1372 | 45807 | 5918 | 120 | 63455 |
| 28 | + 6499 | 10328 | 13298 | 1418 | 42593 | 6416 | 124 | 77592 |
| 'eb. 1 | 24053 | 15388 | 11624 | 1447 | 39302 | 6911 | 128 | 95703 |
| 5 | 41413 | 20250 | 9862 | 1462 | 35930 | 7403 | 132 | 113264 |
| 9 | 50646 | 24855 | 8052 | 1466 | 32473 | 7891 | 136 | 122315 |
| 13 | 47144 | 29143 | 6249 | 1459 | 28938 | 8375 | 140 | 118250 |
| 17 | 34506 | 33058 | 4513 | 1444 | 25330 | 8854 | 144 | 104673 |
| 21 | 19663 | 36547 | 2916 | 1422 | 21650 | 9327 | 147 | 88534 |
| 25 | + 6965 | 39566 | 1520 | 1394 | 17896 | 9795 | 150 | 74198 |
| 29 | — 2462 | 42071 | + 373 | 1358 | 14072 | 10256 | 153 | 62799 |
| Iar. 4 | 9054 | 44027 | — 506 | 1317 | 10180 | 10710 | 157 | 53883 |
| 8 | 13600 | 45405 | 1156 | 1271 | 6220 | 11156 | 160 | 46594 |
| 12 | 16773 | 46185 | 1643 | 1220 | + 2193 | 11595 | 163 | 40174 |
| 16 | 19047 | 46354 | 2078 | 1165 | — 1904 | 12025 | 166 | 34019 |
| 20 | 20714 | 45911 | 2582 | 1106 | 6074 | 12446 | 169 | 27712 |
| 24 | 21939 | 44862 | 3215 | 1043 | 10307 | 12859 | 171 | 21046 |
| 28 | 22788 | 43225 | 4039 | 977 | 14604 | 13263 | 173 | 13907 |
| pr. 1 | —23220 | + 41025 | — 5116 | — 908 | — 18965 | +13657 | —175 | + 6298 |

## TABLE VI.

Containing, for Greenwich Mean Noon of each fourth day, from August 1, 183 April 1, 1836, the united Effects (C) of the attractions of the disturbing Pl upon the Comet in the direction of the co-ordinate $z$, expressed in 10,000,000, parts of an unit, and distinguishing the separate Effect of each Planet.

| Date. | Mercury. | Venus. | Earth. | Mars. | Jupiter. | Saturn. | Georgian. | |
|---|---|---|---|---|---|---|---|---|
| 1835. | | | | | | | | |
| Aug. 1 | — 3800 | — 57 | — 98 | + 15 | — 9965 | + 383 | — 4 | — 1 |
| 5 | 3143 | + 342 | 89 | 16 | 6842 | 400 | 3 | |
| 9 | — 1577 | 740 | 74 | 16 | 4037 | 417 | 2 | — |
| 13 | + 877 | 1123 | 54 | 16 | — 1535 | 435 | — 1 | + |
| 17 | 3484 | 1482 | — 24 | 16 | + 679 | 453 | 0 | |
| 21 | 5149 | 1810 | + 19 | 16 | 2639 | 472 | + 1 | 1 |
| 25 | 5441 | 2104 | 84 | 17 | 4378 | 491 | 2 | 1 |
| 29 | 4761 | 2361 | 181 | 18 | 5906 | 509 | 3 | 1 |
| Sep. 2 | 3701 | 2578 | 332 | 18 | 7231 | 527 | 4 | 1 |
| 6 | 2629 | 2758 | 571 | 19 | 8379 | 545 | 5 | 1 |
| 10 | 1686 | 2899 | 966 | 20 | 9377 | 563 | 6 | 1 |
| 14 | 896 | 3004 | 1649 | 21 | 10228 | 581 | 7 | 1 |
| 18 | + 242 | 3073 | 2902 | 22 | 10933 | 599 | 8 | 1 |
| 22 | — 307 | 3109 | 5394 | 24 | 11512 | 616 | 9 | 2 |
| 26 | 776 | 3113 | 10918 | 26 | 11982 | 633 | 10 | 2 |
| 30 | 1182 | 3092 | 25176 | 28 | 12341 | 649 | 11 | 4 |
| Oct. 4 | 1525 | 3051 | 70609 | 32 | 12585 | 664 | 12 | 8 |
| 8 | 1783 | 2998 | 251704 | 37 | 12726 | 677 | 13 | 26 |
| 12 | 1871 | 2944 | 691560 | 43 | 12776 | 689 | 14 | 70 |
| 16 | 1550 | 2907 | 373844 | 50 | 12726 | 699 | 15 | 38 |
| 20 | — 113 | 2913 | 113050 | 59 | 12569 | 704 | 16 | 12 |
| 24 | + 4445 | 3006 | 42511 | 72 | 12306 | 704 | 16 | 6 |
| 28 | 13336 | 3266 | 19803 | 89 | 11938 | 699 | 16 | 4 |
| Nov. 1 | 12114 | 3847 | 10738 | 113 | 11460 | 686 | 16 | 3 |
| 5 | 5105 | 5084 | 6427 | 147 | 10869 | 663 | 16 | 9 |
| 9 | 3783 | 7806 | 4127 | 192 | 10159 | 629 | 17 | |
| 13 | 5027 | 14496 | 2785 | 255 | 9329 | 579 | 16 | |
| 17 | 6143 | 34615 | 1945 | 342 | 8392 | 514 | 15 | |
| 21 | 6192 | 119356 | 1387 | 457 | 7364 | 431 | 13 | 1 |
| 25 | 5417 | 518654 | 998 | 595 | 6264 | 333 | 11 | 5 |
| 29 | 4348 | 285750 | 711 | 721 | 5111 | 221 | 9 | 5 |
| Dec. 3 | 3333 | 48633 | 489 | 763 | 3920 | + 97 | 7 | |
| 7 | 2471 | 10795 | 311 | 656 | 2706 | — 38 | 4 | |
| 11 | 1591 | + 2015 | 158 | 426 | 1477 | 180 | 2 | + |
| 15 | + 254 | — 841 | + 22 | 182 | + 240 | 328 | + 1 | — |
| 19 | — 1140 | — 2018 | — 105 | + 4 | — 1007 | — 481 | — 1 | — |

## TABLE VI.—*continued.*

| Date. | Mercury. | Venus. | Earth. | Mars. | Jupiter. | Saturn. | Georgian. | C. |
|---|---|---|---|---|---|---|---|---|
| 1835. | | | | | | | | |
| Dec. 19 | — 1140 | — 2018 | — 105 | + 4 | — 1007 | — 481 | — 1 | — 4748 |
| 23 | 1768 | 2594 | 229 | — 101 | 2270 | 639 | 3 | 7604 |
| 27 | 2057 | 2913 | 354 | 154 | 3543 | 800 | 5 | 9826 |
| 31 | 2341 | 3100 | 485 | 176 | 4824 | 963 | 7 | 11896 |
| 1836. | | | | | | | | |
| Jan. 4 | 2676 | 3208 | 626 | 183 | 6115 | 1127 | 9 | 13944 |
| 8 | 3051 | 3261 | 781 | 180 | 7422 | 1293 | 11 | 15999 |
| 12 | 3442 | 3270 | 955 | 175 | 8744 | 1460 | 12 | 18058 |
| 16 | 3803 | 3238 | 1153 | 168 | 10083 | 1628 | 13 | 20086 |
| 20 | 4039 | 3178 | 1381 | 162 | 11439 | 1796 | 15 | 22010 |
| 24 | 3966 | 3087 | 1645 | 156 | 12816 | 1964 | 16 | 23650 |
| 28 | 3295 | 2957 | 1951 | 150 | 14215 | 2132 | 18 | 24718 |
| Feb. 1 | — 1720 | 2804 | 2305 | 144 | 15637 | 2300 | 19 | 24929 |
| 5 | + 725 | 2625 | 2715 | 139 | 17083 | 2467 | 21 | 24325 |
| 9 | 3287 | 2423 | 3182 | 135 | 18556 | 2634 | 22 | 23665 |
| 13 | 4868 | 2201 | 3707 | 132 | 20057 | 2800 | 23 | 24052 |
| 17 | 5056 | 1961 | 4280 | 129 | 21588 | 2965 | 24 | 25891 |
| 21 | 4279 | 1709 | 4882 | 126 | 23151 | 3129 | 26 | 28744 |
| 25 | 3146 | 1448 | 5483 | 123 | 24747 | 3292 | 27 | 31974 |
| 29 | 2040 | 1183 | 6034 | 121 | 26377 | 3453 | 28 | 35156 |
| Mar. 4 | 1105 | 918 | 6488 | 118 | 28043 | 3612 | 29 | 38103 |
| 8 | + 351 | 657 | 6792 | 116 | 29747 | 3770 | 30 | 40761 |
| 12 | — 260 | 406 | 6907 | 114 | 31490 | 3926 | 31 | 43134 |
| 16 | 775 | — 169 | 6825 | 112 | 33275 | 4079 | 32 | 45267 |
| 20 | 1233 | + 48 | 6558 | 110 | 35104 | 4230 | 33 | 47220 |
| 24 | 1661 | 242 | 6144 | 108 | 36977 | 4379 | 34 | 49061 |
| 28 | 2080 | 410 | 5634 | 106 | 38896 | 4525 | 34 | 50865 |
| Apr. 1 | — 2500 | + 549 | — 5076 | — 105 | — 40863 | — 4669 | — 35 | — 52699 |

## TABLE VII.

Containing, for Greenwich Mean Noon of each fourth day, from August 1, 183
April 1, 1836, the Values of A′, B′, C′, expressed in 10,000,000,000th par
an unit.

| Date. | A′ | B′ | C′ | Date. | A′ | B′ | |
|---|---|---|---|---|---|---|---|
| 1835. | | | | 1835. | | | |
| Aug. 1 | −400192 | +379032 | +141231 | Dec. 7 | + 11485 | +101222 | − 4 |
| 5 | 301357 | 358155 | 128032 | 11 | 17539 | 69220 | 2 |
| 9 | 211518 | 329654 | 112257 | 15 | 24926 | 59426 | 1 |
| 13 | 141858 | 292643 | 93706 | | | | |
| 17 | 102748 | 252128 | 74645 | 19 | 24389 | 59864 | 1 |
| | | | | 23 | 17936 | 58438 | 1 |
| 21 | 90639 | 217317 | 58853 | 27 | 13211 | 55640 | |
| 25 | 89146 | 193228 | 48127 | 31 | 10821 | 53820 | |
| 29 | 84787 | 177804 | 41372 | 1836. | | | |
| Sep. 2 | 73714 | 166523 | 36611 | Jan. 4 | 9730 | 53215 | − |
| 6 | 57437 | 156071 | 32437 | | | | |
| 10 | 38417 | 144762 | 28140 | 8 | 9118 | 53611 | + |
| 14 | − 18463 | 131718 | 23336 | 12 | 8320 | 55031 | |
| 18 | + 1635 | 116138 | 17587 | 16 | 6727 | 57842 | |
| 22 | 22026 | 96485 | + 9889 | 20 | 3923 | 62825 | |
| 26 | 43585 | 69390 | − 2335 | 24 | + 317 | 71329 | |
| 30 | 67851 | + 26861 | 26810 | 28 | − 1407 | 84977 | + |
| Oct. 4 | 94611 | − 50570 | 91816 | Feb. 1 | + 5544 | 104188 | − |
| 8 | + 91421 | 182278 | 315760 | 5 | 31087 | 125261 | |
| 12 | −125628 | − 1588 | 766170 | 9 | 79727 | 139831 | 1 |
| 16 | −128719 | +356292 | 349965 | 13 | 141938 | 141288 | 2 |
| 20 | + 544 | 226084 | 84652 | 17 | 201580 | 131390 | 2 |
| 24 | 52187 | 119597 | 25473 | 21 | 250151 | 116780 | 2 |
| 28 | 75176 | 54565 | 13733 | 25 | 288374 | 102408 | 2 |
| Nov. 1 | 72601 | + 8246 | 7670 | 29 | 320097 | 90076 | 2 |
| 5 | 52487 | − 44330 | 6502 | Mar. 4 | 348516 | 79732 | 1 |
| 9 | + 26453 | 87584 | 14205 | 8 | 375450 | 70725 | 1 |
| 13 | − 557 | 112055 | 27186 | 12 | 401858 | 62406 | 1 |
| 17 | 23152 | 137530 | 48286 | 16 | 427372 | 54192 | 1 |
| 21 | 61543 | 229148 | 125518 | 20 | 452446 | 45735 | |
| 25 | 233150 | −262744 | 578345 | 24 | 476649 | 36849 | |
| 29 | − 90035 | +329951 | 424816 | 28 | 499672 | 27466 | |
| Dec. 3 | + 1952 | 181003 | 113288 | Apr. 1 | +520954 | + 17609 | − |
| 7 | + 11485 | +101222 | − 47929 | | | | |

## TABLE VIII.

ntaining the Variations of the Elements of the Comet's Orbit for each interval of four days, between the Noon of July 30, 1835, and the Noon of April 3, 1836, Greenwich Mean Time; the tabular date being the middle of each interval.

* The figure in a parenthesis, at the head of a column, indicates the number of cyphers to be prefixed to all the values in that column.

| Date. | [a] | [e] | [ν] | [i] | [ϖ] | [ε] |
|---|---|---|---|---|---|---|
| 1835. | 0 ·(2) | 0 ·(5) | ″ | ″ | ″ | ″ |
| ug. 1 | —16336 | —26591 | +0 ·11876 | —0 ·37360 | —1 ·60324 | —0 ·91704 |
| 5 | 14500 | 23503 | 0 ·08438 | 0 ·32982 | 1 ·47658 | 0 ·86797 |
| 9 | 12507 | 20180 | 0 ·05353 | 0 ·28125 | 1 ·32495 | 0 ·80042 |
| 13 | 10549 | 16974 | 0 ·02757 | 0 ·22796 | 1 ·15008 | 0 ·70786 |
| 17 | 08993 | 14511 | +0 ·00832 | 0 ·17603 | 0 ·97468 | 0 ·59770 |
| 21 | 08075 | 13152 | —0 ·00420 | 0 ·13429 | 0 ·83170 | 0 ·49304 |
| 25 | 07645 | 12589 | 0 ·01224 | 0 ·10604 | 0 ·73334 | 0 ·41255 |
| 29 | 07377 | 12253 | 0 ·01807 | 0 ·08781 | 0 ·66679 | 0 ·35717 |
| p. 2 | 07047 | 11770 | 0 ·02266 | 0 ·07467 | 0 ·61397 | 0 ·31813 |
| 6 | 06578 | 11022 | 0 ·02595 | 0 ·06337 | 0 ·56339 | 0 ·28726 |
| 10 | 05958 | 09999 | 0 ·02758 | 0 ·05248 | 0 ·51025 | 0 ·26016 |
| 14 | 05188 | 08707 | 0 ·02704 | 0 ·04139 | 0 ·45250 | 0 ·23475 |
| 18 | 04243 | 07101 | 0 ·02348 | 0 ·02952 | 0 ·38839 | 0 ·21037 |
| 22 | 03028 | 05018 | —0 ·01492 | —0 ·01563 | 0 ·31387 | 0 ·18683 |
| 26 | —01341 | —02101 | +0 ·00392 | +0 ·00345 | 0 ·21975 | 0 ·16348 |
| 30 | +01292 | +02486 | 0 ·04942 | 0 ·03677 | —0 ·08391 | 0 ·13809 |
| ct. 4 | 05904 | 10548 | 0 ·18382 | 0 ·11572 | +0 ·14815 | —0 ·09948 |
| 8 | +12478 | +22003 | 0 ·67978 | 0 ·36132 | 0 ·53807 | +0 ·01473 |
| 12 | —05187 | —09472 | 1 ·75710 | 0 ·78360 | +0 ·13846 | 0 ·35552 |
| 16 | 25208 | 44683 | 0 ·84717 | 0 ·31333 | —0 ·82022 | 0 ·23627 |
| 20 | 13279 | 23452 | 0 ·21425 | 0 ·06448 | 0 ·54292 | +0 ·01356 |
| 24 | 05189 | 09083 | 0 ·06673 | 0 ·01583 | 0 ·32026 | —0 ·10245 |
| 28 | —00389 | —00545 | 0 ·03681 | 0 ·00652 | 0 ·21084 | 0 ·19390 |
| ov. 1 | +02334 | +04282 | 0 ·02076 | 0 ·00247 | 0 ·13961 | 0 ·23658 |
| 5 | 05154 | 09287 | 0 ·01749 | 0 ·00107 | —0 ·05269 | 0 ·2676[illegible] |
| 9 | 07611 | 13666 | 0 ·03728 | +0 ·00005 | +0 ·01254 | 0 |
| 13 | 09168 | 16452 | 0 ·06805 | —0 ·00426 | 0 ·04645 | |
| 17 | 11410 | 20483 | 0 ·11223 | 0 ·01516 | 0 ·04872 | |
| 21 | 19649 | 35284 | 0 ·26254 | 0 ·05820 | 0 ·02358 | |
| 25 | +27384 | +49289 | 1 ·04830 | 0 ·34892 | 0 ·29122 | |
| 29 | —21037 | —37484 | +0 ·63619 | —0 ·31053 | +0 ·69[illegible] | |

## TABLE VIII.—*continued.*

| Date. | [a] | [e] | [ν] | [i] | [ϖ] | |
|---|---|---|---|---|---|---|
| 1835. | 0 ·(2) | 0 ·(5) | ″ | ″ | ″ | ″ |
| Nov. 29 | −21037 | −37484 | +0 ·63619 | −0 ·31053 | +0 ·69732 | +1 |
| Dec. 3 | 12683 | 22616 | 0 ·13105 | 0 ·09588 | 0 ·33595 | 0 |
| 7 | 07103 | 12645 | 0 ·03832 | 0 ·04551 | 0 ·20249 | 0 |
| 11 | 04997 | 08886 | 0 ·01209 | 0 ·02910 | 0 ·14724 | 0 |
| 15 | 04475 | 07954 | +0 ·00114 | 0 ·02068 | 0 ·13443 | 0 |
| 19 | 04221 | 07474 | −0 ·00458 | 0 ·01775 | 0 ·15017 | 0 |
| 23 | 03644 | 06411 | 0 ·00778 | 0 ·01448 | 0 ·16087 | 0 |
| 27 | 03121 | 05455 | 0 ·00833 | 0 ·01056 | 0 ·16190 | 0 |
| 31 | 02779 | 04823 | 0 ·00692 | 0 ·00678 | 0 ·16363 | 0 |
| 1836. | | | | | | |
| Jan. 4 | 02567 | 04425 | −0 ·00399 | −0 ·00323 | 0 ·16760 | 0 |
| 8 | 02430 | 04162 | +0 ·00022 | +0 ·00015 | 0 ·17396 | 0 |
| 12 | 02341 | 03976 | 0 ·00551 | 0 ·00339 | 0 ·18317 | 0 |
| 16 | 02286 | 03845 | 0 ·01144 | 0 ·00633 | 0 ·19665 | 0 |
| 20 | 02277 | 03784 | 0 ·01697 | 0 ·00858 | 0 ·21716 | 0 |
| 24 | 02366 | 03877 | 0 ·01963 | 0 ·00916 | 0 ·24971 | 0 |
| 28 | 02661 | 04309 | +0 ·01456 | +0 ·00633 | 0 ·30101 | 0 |
| Feb. 1 | 03318 | 05359 | −0 ·00498 | −0 ·00203 | 0 ·37505 | 0 |
| 5 | 04418 | 07193 | 0 ·04268 | 0 ·01639 | 0 ·46219 | 0 |
| 9 | 05766 | 09518 | 0 ·09049 | 0 ·03292 | 0 ·53426 | 0 |
| 13 | 06940 | 11615 | 0 ·12991 | 0 ·04496 | 0 ·56422 | 0 |
| 17 | 07661 | 12974 | 0 ·14868 | 0 ·04911 | 0 ·55240 | 0 |
| 21 | 07978 | 13636 | 0 ·14895 | 0 ·04711 | 0 ·51949 | 0 |
| 25 | 08070 | 13894 | 0 ·13924 | 0 ·04227 | 0 ·48343 | 0 |
| 29 | 08077 | 13986 | 0 ·12638 | 0 ·03691 | 0 ·45205 | 0 |
| Mar. 4 | 08065 | 14032 | 0 ·11374 | 0 ·03203 | 0 ·42626 | 0 |
| 8 | 08053 | 14070 | 0 ·10236 | 0 ·02784 | 0 ·40421 | 0 |
| 12 | 08044 | 14113 | 0 ·09234 | 0 ·02430 | 0 ·38386 | 0 |
| 16 | 08018 | 14129 | 0 ·08239 | 0 ·02101 | 0 ·36283 | 0 |
| 20 | 07978 | 14123 | 0 ·07211 | 0 ·01784 | 0 ·34001 | 0 |
| 24 | 07914 | 14083 | 0 ·06037 | 0 ·01451 | 0 ·31449 | 0 |
| 28 | 07822 | 14001 | 0 ·04616 | 0 ·01078 | 0 ·28596 | 0 |
| Apr. 1 | −07698 | −13869 | −0 ·02844 | −0 ·00647 | +0 ·25435 | +0 |

## TABLE IX—*continued.*

| Date. | δa | δe | δν | δi | δϖ | δ |
|---|---|---|---|---|---|---|
| 1835. | | | ″ | ″ | ″ | ″ |
| Nov. 27 | −0 ·(2) 68320 | −0 ·(4)1027 | +5 ·89 | −0 ·63 | −12 ·75 | −9 |
| Dec. 1 | 86991 | 1359 | 6 ·54 | 0 ·93 | 12 ·09 | 8 |
| 5 | 0 ·(2) 99790 | 1587 | 6 ·70 | 1 ·03 | 11 ·75 | 7 |
| 9 | 0 ·(1)107038 | 1716 | 6 ·75 | 1 ·07 | 11 ·54 | 7 |
| 13 | 112101 | 1806 | 6 ·78 | 1 ·10 | 11 ·39 | 6 |
| 17 | 116587 | 1886 | 6 ·79 | 1 ·12 | 11 ·26 | 6 |
| 21 | 120795 | 1961 | 6 ·80 | 1 ·13 | 11 ·11 | 6 |
| 25 | 124441 | 2025 | 6 ·80 | 1 ·15 | 10 ·95 | 5 |
| 29 | 127570 | 2079 | 6 ·81 | 1 ·15 | 10 ·79 | 5 |
| 1836. | | | | | | |
| Jan. 2 | 130354 | 2128 | 6 ·81 | 1 ·16 | 10 ·62 | 5 |
| 6 | 132924 | 2172 | 6 ·82 | 1 ·16 | 10 ·46 | 4 |
| 10 | 135356 | 2214 | 6 ·84 | 1 ·16 | 10 ·28 | 4 |
| 14 | 137698 | 2253 | 6 ·85 | 1 ·15 | 10 ·10 | 4 |
| 18 | 139986 | 2292 | 6 ·88 | 1 ·14 | 9 ·91 | 4 |
| 22 | 142267 | 2330 | 6 ·91 | 1 ·13 | 9 ·69 | 3 |
| 26 | 144642 | 2369 | 6 ·94 | 1 ·12 | 9 ·44 | 3 |
| 30 | 147318 | 2412 | 6 ·97 | 1 ·11 | 9 ·14 | 2 |
| Feb. 3 | 150654 | 2466 | 6 ·98 | 1 ·11 | 8 ·76 | 2 |
| 7 | 155082 | 2538 | 6 ·94 | 1 ·12 | 8 ·30 | 1 |
| 11 | 160841 | 2633 | 6 ·87 | 1 ·15 | 7 ·77 | 1 |
| 15 | 167762 | 2749 | 6 ·75 | 1 ·19 | 7 ·21 | −0 |
| 19 | 175406 | 2879 | 6 ·61 | 1 ·24 | 6 ·66 | +0 |
| 23 | 183375 | 3015 | 6 ·48 | 1 ·28 | 6 ·14 | 1 |
| 27 | 191441 | 3154 | 6 ·35 | 1 ·32 | 5 ·65 | 2 |
| Mar. 2 | 199517 | 3293 | 6 ·24 | 1 ·36 | 5 ·20 | 3 |
| 6 | 207582 | 3434 | 6 ·14 | 1 ·38 | 4 ·78 | 3 |
| 10 | 215635 | 3574 | 6 ·05 | 1 ·41 | 4 ·37 | 4 |
| 14 | 223678 | 3716 | 5 ·97 | 1 ·43 | 3 ·99 | 5 |
| 18 | 231695 | 3857 | 5 ·90 | 1 ·45 | 3 ·63 | 6 |
| 22 | 239672 | 3998 | 5 ·84 | 1 ·46 | 3 ·29 | 6 |
| 26 | 247585 | 4139 | 5 ·79 | 1 ·48 | 2 ·98 | 7 |
| 30 | 255406 | 4279 | 5 ·76 | 1 ·48 | 2 ·69 | 7 |
| Apr. 3 | −0 ·(1)263103 | −0 ·(4)4418 | +5 ·74 | −1 ·49 | − 2 ·44 | +8 |

## TABLE X.

Containing, The *Apparent* Right Ascension and Declination, and the Logarithm of the *True* Distance from the Earth, of HALLEY's Comet, from August 1·5, 1835, to March 31·5, 1836, Mean Time at Greenwich, deduced from approximate Elements of its orbit, on the supposition that those Elements continued invariable during the interval: and the Perturbations in Right Ascension and Declination produced by the disturbing Planets, on the assumption that the approximate Elements represent the actual orbit in which the Comet was moving at Mean Noon at Greenwich on July 30, 1835.

| Date. | Apparent Right Ascension. | Perturbations. | Apparent Declination. | Perturbations. | Log. of True Dist. from the Earth. |
|---|---|---|---|---|---|
| 1835. | ° ′ ″ | ″ | ° ′ ″ | ″ | |
| Aug. 1·5 | 81 21 56·0 | − 0·2 | +21 55 40·8 | 0·0 | 0·40743 |
| 2·5 | 81 33 55·2 | 0·3 | 21 59 49·1 | 0·0 | 0·40252 |
| 3·5 | 81 45 55·5 | 0·3 | 22 4 1·0 | 0·0 | 0·39750 |
| 4·5 | 81 57 56·7 | − 0·3 | 22 8 16·8 | 0·0 | 0·39239 |
| 5·5 | 82 9 58·8 | 0·3 | 22 12 36·7 | 0·0 | 0·38717 |
| 6·5 | 82 22 2·1 | 0·4 | 22 17 1·0 | 0·0 | 0·38186 |
| 7·5 | 82 34 6·3 | − 0·4 | 22 21 29·9 | 0·0 | 0·37643 |
| 8·5 | 82 46 11·8 | 0·2 | 22 26 3·7 | 0·0 | 0·37090 |
| 9·5 | 82 58 18·4 | 0·0 | 22 30 42·6 | 0·0 | 0·36525 |
| 10·5 | 83 10 26·3 | + 0·1 | 22 35 27·1 | 0·0 | 0·35949 |
| 11·5 | 83 22 35·7 | 0·2 | 22 40 17·3 | 0·0 | 0·35361 |
| 12·5 | 83 34 46·4 | 0·2 | 22 45 13·8 | 0·0 | 0·34760 |
| 13·5 | 83 46 58·7 | + 0·3 | 22 50 16·5 | + 0·1 | 0·34147 |
| 14·5 | 83 59 12·7 | 0·3 | 22 55 26·3 | 0·1 | 0·33521 |
| 15·5 | 84 11 28·6 | 0·4 | 23 0 43·3 | 0·1 | 0·32881 |
| 16·5 | 84 23 46·3 | + 0·4 | 23 6 8·1 | + 0·1 | 0·32228 |
| 17·5 | 84 36 6·0 | 0·5 | 23 11 41·3 | 0·2 | 0·31560 |
| 18·5 | 84 48 27·7 | 0·6 | 23 17 23·0 | 0·2 | 0·30878 |
| 19·5 | 85 0 51·8 | + 0·6 | 23 23 14·0 | 0·3 | 0·30180 |
| 20·5 | 85 13 18·4 | 0·6 | 23 29 15·0 | 0·2 | 0·29467 |
| 21·5 | 85 25 47·6 | 0·6 | 23 35 26·4 | + 0·1 | 0·28737 |
| 22·5 | 85 38 19·4 | + 0·6 | 23 41 48·9 | + 0·0 | 0·27991 |
| 23·5 | 85 50 54·7 | 0·7 | 23 48 23·6 | − 0·1 | 0·27226 |
| 24·5 | 86 3 33·4 | 0·7 | 23 55 10·5 | − 0·1 | 0·26444 |
| 25·5 | 86 16 15·7 | + 0·7 | 24 2 11·2 | − 0·0 | 0·25643 |
| 26·5 | 86 29 2·3 | 0·7 | 24 9 26·2 | + 0·1 | 0·24823 |
| 27·5 | 86 41 53·4 | 0·8 | 24 16 56·8 | 0·1 | 0·23982 |
| 28·5 | 86 54 49·8 | + 0·8 | 24 24 43·6 | 0·1 | 0·23120 |
| 29·5 | 87 7 51·9 | 0·9 | 24 32 48·1 | 0·2 | 0·22237 |
| 30·5 | 87 21 0·4 | 0·9 | 24 41 11·5 | 0·3 | 0·21330 |
| 31·5 | 87 34 16·1 | + 1·0 | +24 49 55·3 | + 0·3 | 0·20400 |

## TABLE X.—*continued.*

| Date. | Apparent Right Ascension. | Pertur-bations. | Apparent Declination. | Pertur-bations. | Log. of True Dist. from the Earth. |
|---|---|---|---|---|---|
| 1835. | ° ′ ″ | ″ | ° ′ ″ | ″ | |
| Aug. 31 ·5 | 87 34 16 ·1 | + 1 ·0 | +24 49 55 ·3 | + 0 ·3 | 0 ·20400 |
| Sep. 1 ·5 | 87 47 39 ·7 | 1 ·0 | 24 59 0 ·9 | 0 ·3 | 0 ·19445 |
| 2 ·5 | 88 1 12 ·4 | 1 ·1 | 25 8 29 ·9 | 0 ·3 | 0 ·18463 |
| 3 ·5 | 88 14 54 ·8 | + 1 ·1 | 25 18 24 ·3 | + 0 ·3 | 0 ·17455 |
| 4 ·5 | 88 28 48 ·7 | 1 ·2 | 25 28 46 ·2 | 0 ·3 | 0 ·16418 |
| 5 ·5 | 88 42 54 ·9 | 1 ·2 | 25 39 37 ·0 | 0 ·2 | 0 ·15351 |
| 6 ·5 | 88 57 15 ·4 | + 1 ·2 | 25 51 0 ·1 | + 0 ·1 | 0 ·14253 |
| 7 ·5 | 89 11 51 ·6 | 1 ·2 | 26 2 57 ·9 | 0 ·0 | 0 ·13121 |
| 8 ·5 | 89 26 45 ·6 | 1 ·3 | 26 15 33 ·4 | — 0 ·1 | 0 ·11955 |
| 9 ·5 | 89 41 59 ·3 | + 1 ·3 | 26 28 49 ·6 | 0 ·0 | 0 ·10752 |
| 10 ·5 | 89 57 35 ·4 | 1 ·4 | 26 42 50 ·8 | + 0 ·1 | 0 ·09509 |
| 11 ·5 | 90 13 36 ·7 | 1 ·5 | 26 57 41 ·0 | 0 ·2 | 0 ·08226 |
| 12 ·5 | 90 30 6 ·5 | + 1 ·6 | 27 13 24 ·6 | + 0 ·4 | 0 ·06900 |
| 13 ·5 | 90 47 8 ·2 | 1 ·7 | 27 30 7 ·2 | 0 ·3 | 0 ·05527 |
| 14 ·5 | 91 4 46 ·6 | 1 ·8 | 27 47 55 ·1 | 0 ·2 | 0 ·04105 |
| 15 ·5 | 91 23 6 ·7 | + 1 ·9 | 28 6 54 ·7 | + 0 ·1 | 0 ·02630 |
| 16 ·5 | 91 42 13 ·9 | 2 ·0 | 28 27 14 ·3 | 0 ·0 | 0 ·01100 |
| 17 ·5 | 92 2 15 ·0 | 2 ·1 | 28 49 2 ·6 | — 0 ·1 | 9 ·99509 |
| 18 ·5 | 92 23 18 ·9 | + 2 ·3 | 29 12 30 ·3 | — 0 ·1 | 9 ·97855 |
| 19 ·5 | 92 45 34 ·8 | 2 ·4 | 29 37 49 ·2 | 0 ·2 | 9 ·96131 |
| 20 ·5 | 93 9 14 ·2 | 2 ·6 | 30 5 13 ·1 | 0 ·2 | 9 ·94334 |
| 21 ·5 | 93 34 31 ·6 | + 2 ·8 | 30 34 59 ·0 | — 0 ·2 | 9 ·92456 |
| 22 ·5 | 94 1 43 ·5 | 2 ·9 | 31 7 25 ·5 | 0 ·3 | 9 ·90492 |
| 23 ·5 | 94 31 11 ·8 | 3 ·1 | 31 42 56 ·7 | 0 ·4 | 9 ·88433 |
| 24 ·5 | 95 3 21 ·7 | + 3 ·3 | 32 21 58 ·2 | — 0 ·4 | 9 ·86273 |
| 25 ·5 | 95 38 46 ·9 | 3 ·6 | 33 5 4 ·0 | 0 ·6 | 9 ·84000 |
| 26 ·5 | 96 18 8 ·7 | 3 ·8 | 33 52 53 ·4 | 0 ·8 | 9 ·81606 |
| 27 ·5 | 97 2 20 ·2 | + 4 ·1 | 34 46 13 ·2 | — 1 ·1 | 9 ·79078 |
| 28 ·5 | 97 52 32 ·8 | 4 ·4 | 35 46 4 ·5 | 1 ·4 | 9 ·76403 |
| 29 ·5 | 98 50 19 ·0 | 4 ·4 | 36 53 37 ·6 | 1 ·8 | 9 ·73566 |
| 30 ·5 | 99 57 45 ·9 | + 4 ·2 | 38 10 22 ·2 | — 2 ·2 | 9 ·70552 |
| Oct. 1 ·5 | 101 17 50 ·6 | 3 ·9 | 39 38 10 ·3 | 2 ·7 | 9 ·67343 |
| 1 ·75 | 101 40 17 ·1 | 3 ·8 | 40 2 6 ·2 | 2 ·9 | 9 ·66508 |
| 2 ·0 | 102 3 51 ·5 | + 3 ·7 | 40 26 54 ·5 | — 3 ·1 | 9 ·65660 |
| 2 ·25 | 102 28 38 ·3 | 3 ·7 | 40 52 37 ·5 | 3 ·3 | 9 ·64797 |
| 2 ·5 | 102 54 44 ·1 | 3 ·6 | 41 19 18 ·2 | 3 ·5 | 9 ·63921 |
| 2 ·75 | 103 22 14 ·9 | + 3 ·7 | +41 46 58 ·9 | — 3 ·5 | 9 ·63030 |

## TABLE X.—*continued.*

| Date. | Apparent Right Ascension. | Perturbations. | Apparent Declination. | Perturbations. | Log. of True Dist. from the Earth. |
|---|---|---|---|---|---|
| 1835. | ° ′ ″ | ″ | ° ′ ″ | ″ | |
| Oct. 2·75 | 103 22 14·9 | + 3·7 | +41 46 58·9 | − 3·5 | 9·63030 |
| 3·0 | 103 51 18·8 | 3·9 | 42 15 43·0 | 3·6 | 9·62125 |
| 3·25 | 104 22 3·3 | 4·2 | 42 45 33·3 | 3·6 | 9·61204 |
| 3·5 | 104 54 38·1 | + 4·5 | 43 16 33·2 | − 3·7 | 9·60269 |
| 3·75 | 105 29 12·6 | 4·8 | 43 48 45·8 | 3·7 | 9·59318 |
| 4·0 | 106 5 59·1 | 5·1 | 44 22 14·6 | 3·8 | 9·58352 |
| 4·25 | 106 45 9·7 | + 5·4 | 44 57 2·8 | − 3·9 | 9·57370 |
| 4·5 | 107 26 58·9 | 5·9 | 45 33 14·0 | 4·1 | 9·56373 |
| 4·75 | 108 11 42·3 | 6·7 | 46 10 51·2 | 4·3 | 9·55360 |
| 5·0 | 108 59 39·4 | + 7·4 | 46 49 58·1 | − 4·5 | 9·54331 |
| 5·25 | 109 51 10·2 | 7·9 | 47 30 37·7 | 4·7 | 9·53288 |
| 5·5 | 110 46 39·7 | 8·4 | 48 12 53·4 | 4·9 | 9·52229 |
| 5·75 | 111 46 34·7 | + 8·9 | 48 56 47·6 | − 5·1 | 9·51156 |
| 6·0 | 112 51 26·8 | 9·3 | 49 42 22·2 | 5·4 | 9·50068 |
| 6·125 | 113 25 54·8 | 9·5 | 50 5 47·5 | 5·5 | 9·49519 |
| 6·25 | 114 1 50·6 | + 9·6 | 50 29 37·9 | − 5·7 | 9·48967 |
| 6·375 | 114 39 20·0 | 9·7 | 50 53 53·8 | 5·8 | 9·48412 |
| 6·5 | 115 18 27·7 | 9·8 | 51 18 34·7 | 6·0 | 9·47854 |
| 6·625 | 115 59 20·1 | + 9·7 | 51 43 40·5 | − 6·2 | 9·47293 |
| 6·75 | 116 42 4·2 | 9·6 | 52 9 10·8 | 6·4 | 9·46729 |
| 6·875 | 117 26 47·0 | 9·5 | 52 35 4·9 | 6·6 | 9·46163 |
| 7·0 | 118 13 35·4 | + 9·4 | 53 1 22·4 | − 6·8 | 9·45595 |
| 7·125 | 119 2 37·8 | 9·2 | 53 28 2·3 | 7·0 | 9·45024 |
| 7·25 | 119 54 2·8 | 8·9 | 53 55 3·6 | 7·3 | 9·44452 |
| 7·375 | 120 48 0·0 | + 8·5 | 54 22 24·8 | − 7·5 | 9·43878 |
| 7·5 | 121 44 38·8 | 8·1 | 54 50 4·6 | 7·8 | 9·43304 |
| 7·625 | 122 44 9·8 | 7·6 | 55 18 1·0 | 8·1 | 9·42728 |
| 7·75 | 123 46 44·3 | + 7·1 | 55 46 11·6 | − 8·5 | 9·42152 |
| 7·875 | 124 52 34·5 | 6·5 | 56 14 33·8 | 8·9 | 9·41575 |
| 8·0 | 126 1 52·6 | 5·9 | 56 43 4·6 | 9·3 | 9·40999 |
| 8·125 | 127 14 51·9 | + 5·2 | 57 11 40·3 | − 9·6 | |
| 8·25 | 128 31 46·1 | 4·5 | 57 40 16·8 | 10·0 | |
| 8·375 | 129 52 50·1 | 3·7 | 58 8 49·3 | 10 | |
| 8·5 | 131 18 19·0 | + 2·9 | 58 37 12·4 | — | |
| 8·625 | 132 48 27·5 | 2·0 | 59 5 20·1 | | |
| 8·75 | 134 23 31·7 | + 1·0 | 59 33 5·6 | | |
| 8·875 | 136 3 47·3 | − 0·1 | +60 0 20·8 | | |

## TABLE X.—*continued.*

| Date. | Apparent Right Ascension. | Perturbations. | Apparent Declination. | Perturbations. | Log. of True Dist. from the Earth. |
|---|---|---|---|---|---|
| 1835. | ° ′ ″ | ″ | ° ′ ″ | ″ | |
| Oct. 8·875 | 136 3 47·3 | − 0·1 | +60 0 20·8 | −11·3 | 9·37019 |
| 9·0 | 137 49 29·2 | 1·2 | 60 26 57·1 | 11·5 | 9·36465 |
| 9·125 | 139 40 51·9 | 2·4 | 60 52 45·1 | 11·7 | 9·35916 |
| 9·25 | 141 38 8·3 | − 3·7 | 61 17 34·1 | −11·8 | 9·35375 |
| 9·375 | 143 41 29·6 | 5·2 | 61 41 12·6 | 11·9 | 9·34841 |
| 9·5 | 145 51 4·5 | 6·8 | 62 3 27·9 | 12·0 | 9·34316 |
| 9·625 | 148 6 58·2 | − 8·7 | 62 24 6·6 | −12·0 | 9·33800 |
| 9·75 | 150 29 12·1 | 10·9 | 62 42 54·3 | 11·9 | 9·33295 |
| 9·875 | 152 57 41·7 | 13·2 | 62 59 36·0 | 11·8 | 9·32801 |
| 10·0 | 155 32 17·6 | −15·5 | 63 13 55·9 | −11·7 | 9·32320 |
| 10·125 | 158 12 42·3 | 17·8 | 63 25 38·5 | 11·5 | 9·31853 |
| 10·25 | 160 58 32·1 | 19·9 | 63 34 27·9 | 11·2 | 9·31401 |
| 10·375 | 163 49 14·9 | −21·8 | 63 40 9·0 | −11·0 | 9·30964 |
| 10·5 | 166 44 11·9 | 23·5 | 63 42 26·9 | 10·7 | 9·30545 |
| 10·625 | 169 42 36·5 | 24·9 | 63 41 8·4 | 10·2 | 9·30144 |
| 10·75 | 172 43 34·9 | −26·1 | 63 36 1·6 | − 9·7 | 9·29764 |
| 10·875 | 175 46 9·8 | 27·2 | 63 26 57·3 | 9·2 | 9·29404 |
| 11·0 | 178 49 19·3 | 28·1 | 63 13 48·0 | 8·6 | 9·29066 |
| 11·125 | 181 52 2·0 | −28·9 | 62 56 29·0 | − 8·1 | 9·28751 |
| 11·25 | 184 53 16·5 | 29·5 | 62 34 58·9 | 7·6 | 9·28460 |
| 11·375 | 187 52 4·2 | 29·9 | 62 9 18·8 | 7·2 | 9·28196 |
| 11·5 | 190 47 30·9 | −30·2 | 61 39 32·4 | − 6·8 | 9·27957 |
| 11·625 | 193 38 49·1 | 30·2 | 61 5 46·0 | 6·5 | 9·27746 |
| 11·75 | 196 25 18·4 | 30·0 | 60 28 8·4 | 6·2 | 9·27562 |
| 11·875 | 199 6 26·3 | −29·7 | 59 46 50·7 | − 6·0 | 9·27407 |
| 12·0 | 201 41 47·1 | 29·3 | 59 2 5·4 | 5·7 | 9·27283 |
| 12·125 | 204 11 3·3 | 28·8 | 58 14 6·3 | 5·5 | 9·27188 |
| 12·25 | 206 34 4·0 | −28·3 | 57 23 8·4 | − 5·3 | 9·27124 |
| 12·375 | 208 50 44·7 | 27·7 | 56 29 27·3 | 5·1 | 9·27090 |
| 12·5 | 211 1 5·8 | 27·1 | 55 33 19·1 | 5·0 | 9·27087 |
| 12·625 | 213 5 12·0 | −26·6 | 54 34 59·9 | − 4·8 | 9·27116 |
| 12·75 | 215 3 10·7 | 26·2 | 53 34 45·8 | 4·7 | 9·27175 |
| 12·875 | 216 55 13·2 | 25·8 | 52 32 53·0 | 4·6 | 9·27264 |
| 13·0 | 218 41 32·0 | −25·4 | 51 29 36·9 | − 4·5 | 9·27384 |
| 13·125 | 220 22 21·3 | 24·9 | 50 25 12·1 | 4·4 | 9·27533 |
| 13·25 | 221 57 56·6 | 24·5 | 49 19 53·0 | 4·3 | 9·27712 |
| 13·375 | 223 28 33·2 | −24·0 | +48 13 52·9 | − 4·2 | 9·27919 |

## TABLE X.—*continued.*

| Date. | Apparent Right Ascension. | Perturbations. | Apparent Declination. | Perturbations. | Log. of True Dist. from the Earth. |
|---|---|---|---|---|---|
| 1835. | ° ′ ″ | ″ | ° ′ ″ | ″ | |
| Oct. 13·375 | 223 28 33·2 | −24·0 | +48 13 52·9 | − 4·2 | 9·27919 |
| 13·5 | 224 54 26·9 | 23·6 | 47 7 24·8 | 4·1 | 9·28154 |
| 13·625 | 226 15 52·2 | 23·1 | 46 0 40·4 | 4·0 | 9·28415 |
| 13·75 | 227 33 5·1 | −22·7 | 44 53 50·9 | − 3·9 | 9·28702 |
| 13·875 | 228 46 19·8 | 22·2 | 43 47 6·3 | 3·8 | 9·29014 |
| 14·0 | 229 55 50·7 | 21·8 | 42 40 35·8 | 3·7 | 9·29349 |
| 14·125 | 231 1 50·6 | −21·4 | 41 34 27·4 | − 3·5 | 9·29706 |
| 14·25 | 232 4 33·0 | 21·0 | 40 28 49·2 | 3·3 | 9·30085 |
| 14·375 | 233 4 9·5 | 20·6 | 39 23 48·2 | 3·1 | 9·30484 |
| 14·5 | 234 0 51·6 | −20·2 | 38 19 30·2 | − 2·9 | 9·30902 |
| 14·625 | 234 54 49·6 | 20·0 | 37 16 0·1 | 2·6 | 9·31337 |
| 14·75 | 235 46 13·5 | 19·8 | 36 13 23·0 | 2·2 | 9·31789 |
| 14·875 | 236 35 12·6 | −19·6 | 35 11 42·9 | − 1·8 | 9·32257 |
| 15·0 | 237 21 56·0 | 19·4 | 34 11 3·3 | 1·3 | 9·32738 |
| 15·125 | 238 6 31·1 | 19·2 | 33 11 26·5 | 0·9 | 9·33232 |
| 15·25 | 238 49 6·0 | −19·0 | 32 12 55·3 | − 0·4 | 9·33738 |
| 15·375 | 239 29 48·0 | 18·8 | 31 15 31·5 | + 0·1 | 9·34255 |
| 15·5 | 240 8 43·4 | 18·7 | 30 19 16·5 | 0·6 | 9·34782 |
| 15·625 | 240 45 58·1 | −18·5 | 29 24 10·7 | + 1·0 | 9·35318 |
| 15·75 | 241 21 38·2 | 18·3 | 28 30 15·4 | 1·4 | 9·35861 |
| 15·875 | 241 55 49·1 | 18·1 | 27 37 31·1 | 1·9 | 9·36411 |
| 16·0 | 242 28 35·2 | −17·8 | 26 45 57·8 | + 2·3 | 9·36967 |
| 16·25 | 243 30 12·2 | 17·3 | 25 6 22·0 | 3·0 | 9·38095 |
| 16·5 | 244 27 4·3 | 16·7 | 23 31 24·8 | 3·7 | 9·39239 |
| 16·75 | 245 19 39·3 | −16·2 | 22 0 59·3 | + 4·2 | 9·40392 |
| 17·0 | 246 8 24·0 | 15·6 | 20 34 57·2 | 4·6 | 9·41551 |
| 17·25 | 246 53 40·1 | 15·1 | 19 13 7·9 | 4·9 | 9·42712 |
| 17·5 | 247 35 48·7 | −14·5 | 17 55 21·4 | + 5·2 | 9·43871 |
| 17·75 | 248 15 6·0 | 14·0 | 16 41 25·1 | 5·3 | 9·45026 |
| 18·0 | 248 51 48·0 | 13·4 | 15 31 8·7 | 5·4 | 9·46174 |
| 18·25 | 249 26 7·8 | −12·9 | 14 24 20·1 | + 5·4 | 9·47313 |
| 18·5 | 249 58 18·7 | 12·4 | 13 20 48·6 | 5·3 | 9·48442 |
| 18·75 | 250 28 30·2 | 12·0 | 12 20 22·9 | 5·1 | 9·49559 |
| 19·0 | 250 56 53·1 | −11·6 | 11 22 52·5 | + 4·9 | 9·50663 |
| 19·25 | 251 23 34·9 | 11·3 | 10 28 7·3 | 4·6 | 9·51753 |
| 19·5 | 251 48 44·8 | 11·0 | 9 35 57·6 | 4·3 | 9·52828 |
| 19·75 | 252 12 28·5 | −10·7 | + 8 46 14·2 | + 4·0 | 9·538 |

## TABLE X.—*continued.*

| Date. | Apparent Right Ascension. | Perturbations. | Apparent Declination. | Perturbations. | Log. of True Dist. from the Earth. |
|---|---|---|---|---|---|
| 1835. | ° ′ ″ | ″ | ° ′ ″ | ″ | |
| Oct. 19·75 | 252 12 28·5 | −10·7 | + 8 46 14·2 | + 4·0 | 9·53889 |
| 20·0 | 252 34 53·3 | 10·4 | 7 58 48·5 | 3·7 | 9·54935 |
| 20·25 | 252 56 4·1 | 10·1 | 7 13 32·1 | 3·5 | 9·55964 |
| 20·5 | 253 16 6·3 | − 9·9 | 6 30 17·8 | + 3·2 | 9·56979 |
| 20·75 | 253 35 4·7 | 9·7 | 5 48 57·6 | 3·0 | 9·57977 |
| 21·0 | 253 53 3·9 | 9·5 | 5 9 25·6 | 2·7 | 9·58960 |
| 21·25 | 254 10 6·9 | − 9·3 | 4 31 34·9 | + 2·5 | 9·59928 |
| 21·5 | 254 26 18·4 | 9·1 | 3 55 20·3 | 2·3 | 9·60879 |
| 21·75 | 254 41 40·6 | 8·9 | 3 20 35·8 | 2·1 | 9·61816 |
| 22·0 | 254 56 17·2 | − 8·8 | 2 47 16·7 | + 1·8 | 9·62737 |
| 22·25 | 255 10 10·0 | 8·7 | 2 15 17·8 | 1·6 | 9·63643 |
| 22·5 | 255 23 22·9 | 8·6 | 1 44 34·9 | 1·5 | 9·64534 |
| 22·75 | 255 35 56·6 | − 8·5 | 1 15 3·3 | + 1·3 | 9·65411 |
| 23·0 | 255 47 54·4 | 8·4 | 0 46 39·5 | 1·1 | 9·66274 |
| 23·25 | 255 59 17·4 | 8·3 | + 0 19 19·6 | 1·0 | 9·67122 |
| 23·5 | 256 10 8·6 | − 8·2 | − 0 6 59·5 | + 0·9 | 9·67957 |
| 23·75 | 256 20 28·6 | 8·1 | 0 32 21·2 | 0·8 | 9·68778 |
| 24·0 | 256 30 19·7 | 8·1 | 0 56 48·6 | 0·7 | 9·69587 |
| 24·25 | 256 39 42·5 | − 8·0 | 1 20 24·5 | + 0·6 | 9·70382 |
| 24·5 | 256 48 39·4 | 7·9 | 1 43 11·4 | 0·5 | 9·71165 |
| 24·75 | 256 57 10·0 | 7·8 | 2 5 12·3 | 0·4 | 9·71935 |
| 25·0 | 257 5 17·1 | − 7·7 | 2 26 29·0 | + 0·3 | 9·72694 |
| 25·25 | 257 13 0·5 | 7·6 | 2 47 3·9 | 0·3 | 9·73441 |
| 25·5 | 257 20 22·6 | 7·5 | 3 6 59·0 | 0·2 | 9·74176 |
| 25·75 | 257 27 23·2 | − 7·4 | 3 26 15·9 | + 0·1 | 9·74900 |
| 26·0 | 257 34 4·2 | 7·4 | 3 44 56·7 | 0·1 | 9·75613 |
| 26·25 | 257 40 25·1 | 7·3 | 4 3 3·1 | 0·0 | 9·76315 |
| 26·5 | 257 46 28·2 | − 7·2 | 4 20 36·6 | 0·0 | 9·77007 |
| 26·75 | 257 52 12·7 | 7·1 | 4 37 39·3 | 0·0 | 9·77688 |
| 27·0 | 257 57 40·5 | 7·0 | 4 54 11·9 | 0·0 | 9·78360 |
| 27·25 | 258 2 51·1 | − 7·0 | 5 10 16·0 | − 0·1 | 9·79021 |
| 27·5 | 258 7 46·6 | 6·9 | 5 25 52·9 | 0·1 | 9·79673 |
| 27·75 | 258 12 25·9 | 6·8 | 5 41 3·7 | 0·1 | 9·80316 |
| 28·0 | 258 16 51·0 | − 6·7 | 5 55 49·5 | − 0·1 | 9·80949 |
| 28·25 | 258 21 0·9 | 6·6 | 6 10 11·7 | 0·1 | 9·81573 |
| 28·5 | 258 24 58·4 | 6·6 | 6 24 11·0 | 0·2 | 9·82189 |
| 29·5 | 258 38 35·7 | − 6·3 | − 7 16 38·9 | − 0·2 | 9·84567 |

## TABLE X.—*continued.*

| Date. | Apparent Right Ascension. | Perturbations. | Apparent Declination. | Perturbations. | Log. of True Dist. from the Earth. |
|---|---|---|---|---|---|
| 1835. | ° ′ ″ | ″ | ° ′ ″ | ″ | |
| Oct. 29 ·5 | 258 38 35 ·7 | — 6 ·3 | — 7 16 38 ·9 | — 0 ·2 | 9 ·84567 |
| 30 ·5 | 258 49 3 ·3 | 6 ·1 | 8 4 10 ·8 | 0 ·3 | 9 ·86818 |
| 31 ·5 | 258 56 42 ·3 | 5 ·9 | 8 47 30 ·7 | 0 ·3 | 9 ·88953 |
| Nov. 1 ·5 | 259 1 49 ·3 | — 5 ·7 | 9 27 15 ·0 | — 0 ·4 | 9 ·90979 |
| 2 ·5 | 259 4 38 ·4 | 5 ·5 | 10 3 53 ·6 | 0 ·4 | 9 ·92905 |
| 3 ·5 | 259 5 21 ·5 | 5 ·4 | 10 37 51 ·2 | 0 ·5 | 9 ·94737 |
| 4 ·5 | 259 4 8 ·8 | — 5 ·4 | 11 9 28 ·9 | — 0 ·5 | 9 ·96482 |
| 5 ·5 | 259 1 9 ·3 | 5 ·4 | 11 39 4 ·4 | 0 ·6 | 9 ·98144 |
| 6 ·5 | 258 56 31 ·2 | 5 ·4 | 12 6 52 ·4 | 0 ·7 | 9 ·99729 |
| 7 ·5 | 258 50 21 ·2 | — 5 ·5 | 12 33 5 ·8 | — 0 ·8 | 0 ·01240 |
| 8 ·5 | 258 42 46 ·2 | 5 ·7 | 12 57 55 ·4 | 0 ·9 | 0 ·02681 |
| 9 ·5 | 258 33 52 ·0 | 5 ·8 | 13 21 30 ·5 | 1 ·0 | 0 ·04056 |
| 10 ·5 | 258 23 44 ·7 | — 6 ·0 | 13 43 59 ·2 | — 1 ·1 | 0 ·05367 |
| 11 ·5 | 258 12 30 ·0 | 6 ·0 | 14 5 28 ·2 | 1 ·2 | 0 ·06617 |
| 12 ·5 | 258 0 12 ·9 | 5 ·8 | 14 26 4 ·1 | 1 ·1 | 0 ·07809 |
| 13 ·5 | 257 46 59 ·2 | — 5 ·5 | 14 45 51 ·6 | — 1 ·1 | 0 ·08945 |
| 14 ·5 | 257 32 53 ·8 | 5 ·1 | 15 4 55 ·4 | 1 ·0 | 0 ·10027 |
| 15 ·5 | 257 18 2 ·2 | 5 ·1 | 15 23 19 ·3 | 1 ·0 | 0 ·11057 |
| 16 ·5 | 257 2 29 ·4 | — 5 ·4 | 15 41 7 ·0 | — 1 ·1 | 0 ·12037 |
| 17 ·5 | 256 46 20 ·4 | 5 ·8 | 15 58 21 ·5 | 1 ·2 | 0 ·12968 |
| 18 ·5 | 256 29 39 ·8 | 6 ·3 | 16 15 5 ·2 | 1 ·3 | 0 ·13853 |
| 19 ·5 | 256 12 32 ·3 | — 6 ·7 | 16 31 20 ·7 | — 1 ·4 | 0 ·14692 |
| 20 ·5 | 255 55 2 ·8 | 6 ·8 | 16 47 9 ·9 | 1 ·4 | 0 ·15489 |
| 21 ·5 | 255 37 15 ·2 | 6 ·8 | 17 2 34 ·9 | 1 ·4 | 0 ·16243 |
| 22 ·5 | 255 19 13 ·5 | — 6 ·8 | 17 17 37 ·2 | — 1 ·5 | 0 ·16957 |
| 23 ·5 | 255 1 1 ·4 | 6 ·9 | 17 32 18 ·4 | 1 ·5 | 0 ·17[illegible] |
| 24 ·5 | 254 42 42 ·5 | 7 ·2 | 17 46 39 ·7 | 1 ·6 | [illegible] |
| 25 ·5 | 254 24 19 ·8 | — 7 ·6 | 18 0 42 ·5 | — | |
| 26 ·5 | 254 5 56 ·4 | 7 ·9 | 18 14 27 ·7 | | |
| 27 ·5 | 253 47 34 ·3 | 8 ·2 | 18 27 56 ·6 | | |
| 28 ·5 | 253 29 16 ·6 | — 8 ·4 | 18 41 10 ·0 | | |
| 29 ·5 | 253 11 4 ·6 | 8 ·5 | 18 54 9 ·1 | | |
| 30 ·5 | 252 52 59 ·9 | 8 ·5 | 19 6 54 ·6 | | |
| Dec. 1 ·5 | 252 35 4 ·1 | — 8 ·5 | 19 19 27 ·2 | | |
| 2 ·5 | 252 17 18 ·5 | 8 ·5 | 19 31 47 ·0 | | |
| 3 ·5 | 251 59 43 ·7 | 8 ·5 | 19 43 57 | | |
| 4 ·5 | 251 42 20 ·6 | — 8 ·6 | —19 55 56 | | |

## TABLE X.—*continued.*

| Date. | Apparent Right Ascension. | Perturbations. | Apparent Declination. | Perturbations. | Log. of True Dist. from the Earth. |
|---|---|---|---|---|---|
| 1835. | ° ′ ″ | ″ | ° ′ ″ | ″ | |
| Dec. 4·5 | 251 42 20·6 | − 8·6 | −19 55 56·1 | − 2·1 | 0·22899 |
| 5·5 | 251 25 8·5 | 8·6 | 20 7 45·2 | 2·1 | 0·23213 |
| 6·5 | 251 8 9·5 | 8·7 | 20 19 24·8 | 2·1 | 0·23505 |
| 7·5 | 250 51 22·4 | − 8·9 | 20 30 55·9 | − 2·0 | 0·23775 |
| 8·5 | 250 34 47·1 | 9·2 | 20 42 19·1 | 2·0 | 0·24023 |
| 9·5 | 250 18 23·7 | 9·5 | 20 53 34·7 | 2·0 | 0·24252 |
| 10·5 | 250 2 11·8 | − 9·7 | 21 4 43·4 | − 2·1 | 0·24461 |
| 11·5 | 249 46 10·5 | 9·7 | 21 15 45·8 | 2·3 | 0·24652 |
| 12·5 | 249 30 19·5 | 9·6 | 21 26 42·2 | 2·4 | 0·24824 |
| 13·5 | 249 14 37·6 | − 9·6 | 21 37 33·0 | − 2·6 | 0·24979 |
| 14·5 | 248 59 5·0 | 9·6 | 21 48 18·9 | 2·7 | 0·25116 |
| 15·5 | 248 43 40·2 | 9·6 | 21 59 0·1 | 2·8 | 0·25238 |
| 16·5 | 248 28 22·4 | − 9·7 | 22 9 37·2 | − 2·9 | 0·25344 |
| 17·5 | 248 13 9·9 | 9·9 | 22 20 10·6 | 2·9 | 0·25434 |
| 18·5 | 247 58 3·0 | 10·2 | 22 30 40·6 | 2·9 | 0·25510 |
| 19·5 | 247 42 59·5 | −10·5 | 22 41 7·5 | − 3·0 | 0·25571 |
| 20·5 | 247 27 58·8 | 10·8 | 22 51 31·7 | 3·1 | 0·25618 |
| 21·5 | 247 12 59·8 | 11·0 | 23 1 53·6 | 3·2 | 0·25651 |
| 22·5 | 246 58 0·8 | −11·1 | 23 12 13·2 | − 3·2 | 0·25672 |
| 23·5 | 246 43 0·3 | 11·2 | 23 22 31·5 | 3·3 | 0·25679 |
| 24·5 | 246 27 58·1 | 11·3 | 23 32 48·1 | 3·4 | 0·25674 |
| 25·5 | 246 12 52·2 | −11·4 | 23 43 3·5 | − 3·5 | 0·25656 |
| 26·5 | 245 57 41·8 | 11·6 | 23 53 17·9 | 3·7 | 0·25627 |
| 27·5 | 245 42 24·9 | 11·8 | 24 3 31·8 | 3·7 | 0·25586 |
| 28·5 | 245 27 1·4 | −12·0 | 24 13 45·0 | − 3·8 | 0·25534 |
| 29·5 | 245 11 28·8 | 12·2 | 24 23 58·1 | 3·9 | 0·25470 |
| 30·5 | 244 55 46·8 | 12·3 | 24 34 11·2 | 3·9 | 0·25396 |
| 31·5 | 244 39 53·4 | −12·4 | 24 44 24·5 | − 4·0 | 0·25311 |
| 1836. | | | | | |
| Jan. 1·5 | 244 23 47·3 | 12·5 | 24 54 38·2 | 4·1 | 0·25215 |
| 2·5 | 244 7 27·0 | 12·6 | 25 4 52·4 | 4·2 | 0·25109 |
| 3·5 | 243 50 51·3 | −12·8 | 25 15 7·6 | − 4·2 | 0·24994 |
| 4·5 | 243 33 59·2 | 13·0 | 25 25 23·3 | 4·3 | 0·24868 |
| 5·5 | 243 16 47·6 | 13·2 | 25 35 40·2 | 4·4 | 0·24733 |
| 6·5 | 242 59 17·4 | −13·5 | 25 45 58·2 | − 4·5 | 0·24589 |
| 7·5 | 242 41 24·9 | 13·8 | 25 56 17·5 | 4·5 | 0·24435 |
| 8·5 | 242 23 9·7 | 14·1 | 26 6 38·2 | 4·6 | 0·24272 |
| 9·5 | 242 4 29·1 | −14·3 | −26 17 0·2 | − 4·7 | 0·24100 |

## TABLE X.—*continued.*

| Date. | Apparent Right Ascension. | Perturbations. | Apparent Declination. | Perturbations. | Log. of True Dist. from the Earth. |
|---|---|---|---|---|---|
| 1836. | ° ′ ″ | ″ | ° ′ ″ | ″ | |
| Jan. 9·5 | 242 4 29·1 | −14·3 | −26 17 0·2 | − 4·7 | 0·24100 |
| 10·5 | 241 45 22·6 | 14·3 | 26 27 23·6 | 4·8 | 0·23919 |
| 11·5 | 241 25 48·0 | 14·3 | 26 37 48·5 | 4·8 | 0·23730 |
| 12·5 | 241 5 43·8 | −14·4 | 26 48 14·8 | − 4·9 | 0·23532 |
| 13·5 | 240 45 7·5 | 14·4 | 26 58 42·6 | 5·0 | 0·23326 |
| 14·5 | 240 23 57·2 | 14·5 | 27 9 11·7 | 5·1 | 0·23112 |
| 15·5 | 240 2 11·8 | −14·5 | 27 19 42·1 | − 5·2 | 0·22890 |
| 16·5 | 239 39 48·7 | 14·6 | 27 30 13·8 | 5·3 | 0·22661 |
| 17·5 | 239 16 45·7 | 14·7 | 27 40 46·5 | 5·4 | 0·22424 |
| 18·5 | 238 53 1·1 | −14·8 | 27 51 20·0 | − 5·5 | 0·22179 |
| 19·5 | 238 28 33·1 | 15·1 | 28 1 54·1 | 5·6 | 0·21927 |
| 20·5 | 238 3 19·4 | 15·4 | 28 12 28·6 | 5·7 | 0·21669 |
| 21·5 | 237 37 17·0 | −15·7 | 28 23 3·1 | − 5·8 | 0·21404 |
| 22·5 | 237 10 24·1 | 16·1 | 28 33 37·3 | 5·9 | 0·21132 |
| 23·5 | 236 42 39·7 | 16·5 | 28 44 10·8 | 5·9 | 0·20854 |
| 24·5 | 236 14 0·3 | −16·9 | 28 54 43·1 | − 6·0 | 0·20570 |
| 25·5 | 235 44 23·3 | 17·3 | 29 5 13·5 | 6·1 | 0·20281 |
| 26·5 | 235 13 47·7 | 17·8 | 29 15 42·1 | 6·2 | 0·19986 |
| 27·5 | 234 42 10·8 | −18·1 | 29 26 7·6 | − 6·2 | 0·19687 |
| 28·5 | 234 9 29·7 | 18·5 | 29 36 29·7 | 6·3 | 0·19382 |
| 29·5 | 233 35 42·6 | 18·9 | 29 46 47·2 | 6·4 | 0·19073 |
| 30·5 | 233 0 46·5 | −19·3 | 29 56 59·9 | − 6·5 | 0·18760 |
| 31·5 | 232 24 39·9 | 19·5 | 30 7 6·4 | 6·5 | 0·18443 |
| Feb. 1·5 | 231 47 19·2 | 19·7 | 30 17 5·6 | 6·6 | 0·18124 |
| 2·5 | 231 8 42·8 | −19·9 | 30 26 56·6 | − 6·6 | 0·17801 |
| 3·5 | 230 28 48·8 | 20·1 | 30 36 38·2 | 6·6 | 0·17475 |
| 4·5 | 229 47 34·2 | 20·6 | 30 46 8·9 | 6·7 | 0·17148 |
| 5·5 | 229 4 56·7 | −21·4 | 30 55 27·1 | − 6·8 | 0·16819 |
| 6·5 | 228 20 54·5 | 22·4 | 31 4 32·0 | 6·9 | 0·16489 |
| 7·5 | 227 35 23·9 | 23·7 | 31 13 21·0 | 6·9 | 0·16158 |
| 8·5 | 226 48 25·4 | −24·6 | 31 21 52·8 | − 6·9 | 0·15828 |
| 9·5 | 225 59 54·8 | 25·3 | 31 30 5·5 | 7·0 | 0·15498 |
| 10·5 | 225 9 50·6 | 25·8 | 31 37 56·9 | 7·0 | 0·15170 |
| 11·5 | 224 18 12·2 | −26·2 | 31 45 24·5 | − 7·0 | 0·14844 |
| 12·5 | 223 24 56·9 | 26·4 | 31 52 26·5 | 6·9 | 0·14520 |
| 13·5 | 222 30 4·4 | 26·7 | 31 59 0·4 | 6·9 | 0·14200 |
| 14·5 | 221 33 34·5 | −27·2 | −32 5 3·3 | − 6·9 | 0·13[illegible] |

## TABLE X.—*continued.*

| Date. | Apparent Right Ascension. | Perturbations. | Apparent Declination. | Perturbations. | Log. of True Dist. from the Earth. |
|---|---|---|---|---|---|
| 1836. | ° ′ ″ | ″ | ° ′ ″ | ″ | |
| Feb. 14·5 | 221 33 34·5 | −27·2 | −32 5 3·3 | − 6·9 | 0·13884 |
| 15·5 | 220 35 25·0 | 27·7 | 32 10 32·8 | 6·8 | 0·13573 |
| 16·5 | 219 35 37·1 | 28·5 | 32 15 26·0 | 6·7 | 0·13268 |
| 17·5 | 218 34 11·3 | −29·3 | 32 19 40·2 | − 6·6 | 0·12971 |
| 18·5 | 217 31 6·0 | 30·2 | 32 23 12·1 | 6·5 | 0·12680 |
| 19·5 | 216 26 24·8 | 31·2 | 32 25 59·2 | 6·3 | 0·12399 |
| 20·5 | 215 20 8·6 | −32·2 | 32 27 58·4 | − 6·2 | 0·12127 |
| 21·5 | 214 12 19·2 | 33·2 | 32 29 6·7 | 6·0 | 0·11866 |
| 22·5 | 213 2 59·1 | 34·2 | 32 29 21·0 | 5·8 | 0·11617 |
| 23·5 | 211 52 12·3 | −35·2 | 32 28 38·5 | − 5·6 | 0·11380 |
| 24·5 | 210 40 3·2 | 36·4 | 32 26 57·0 | 5·2 | 0·11157 |
| 25·5 | 209 26 34·3 | 37·5 | 32 24 13·0 | 4·8 | 0·10948 |
| 26·5 | 208 11 52·7 | −38·6 | 32 20 24·5 | − 4·4 | 0·10755 |
| 27·5 | 206 56 2·9 | 39·6 | 32 15 29·2 | 4·0 | 0·10579 |
| 28·5 | 205 39 9·3 | 40·2 | 32 9 24·3 | 3·6 | 0·10420 |
| 29·5 | 204 21 21·8 | −40·6 | 32 2 9·2 | − 3·3 | 0·10279 |
| Mar. 1·5 | 203 2 45·6 | 41·0 | 31 53 41·6 | 2·9 | 0·10158 |
| 2·5 | 201 43 28·8 | 41·3 | 31 44 0·7 | 2·6 | 0·10058 |
| 3·5 | 200 23 37·5 | −41·5 | 31 33 5·7 | − 2·2 | 0·09978 |
| 4·5 | 199 3 22·5 | 41·6 | 31 20 55·9 | 1·9 | 0·09919 |
| 5·5 | 197 42 51·0 | 42·0 | 31 7 31·6 | 1·5 | 0·09884 |
| 6·5 | 196 22 10·7 | −42·5 | 30 52 53·8 | − 1·1 | 0·09871 |
| 7·5 | 195 1 32·4 | 43·0 | 30 37 2·7 | − 0·6 | 0·09881 |
| 8·5 | 193 41 3·3 | 43·6 | 30 19 59·4 | 0·0 | 0·09915 |
| 9·5 | 192 20 51·3 | −44·2 | 30 1 45·6 | + 0·6 | 0·09974 |
| 10·5 | 191 1 6·0 | 44·8 | 29 42 24·4 | 1·2 | 0·10058 |
| 11·5 | 189 41 57·2 | 45·4 | 29 21 58·3 | 1·8 | 0·10165 |
| 12·5 | 188 23 30·6 | −45·7 | 29 0 29·6 | + 2·3 | 0·10298 |
| 13·5 | 187 5 54·9 | 46·0 | 28 38 2·0 | 2·9 | 0·10455 |
| 14·5 | 185 49 17·9 | 46·1 | 28 14 39·4 | 3·5 | 0·10637 |
| 15·5 | 184 33 45·0 | −45·9 | 27 50 25·0 | + 3·8 | 0·10843 |
| 16·5 | 183 19 24·5 | 45·4 | 27 25 24·0 | 4·0 | 0·11073 |
| 17·5 | 182 6 21·9 | 44·8 | 26 59 40·6 | 4·2 | 0·11327 |
| 18·5 | 180 54 41·4 | −44·4 | 26 33 18·5 | + 4·5 | 0·11603 |
| 19·5 | 179 44 28·5 | 44·3 | 26 6 22·9 | 4·9 | 0·11903 |
| 20·5 | 178 35 47·1 | 44·2 | 25 38 58·3 | 5·4 | 0·12223 |
| 21·5 | 177 28 41·6 | −44·3 | −25 11 9·4 | + 6·0 | 0·12565 |

## TABLE X.—*continued.*

| Date. | Apparent Right Ascension. | Pertur-bations. | Apparent Declination. | Pertur-bations. | Log. of True Dist. from the Earth. |
|---|---|---|---|---|---|
| 1836. | ° ′ ″ | ″ | ° ′ ″ | ″ | |
| ar.21 ·5 | 177 28 41 ·6 | —44 ·3 | —25 11 9 ·4 | + 6 ·0 | 0 ·12565 |
| 22 ·5 | 176 23 13 ·5 | 44 ·4 | 24 43 0 ·7 | 6 ·3 | 0 ·12927 |
| 23 ·5 | 175 19 26 ·0 | 44 ·2 | 24 14 36 ·6 | 6 ·3 | 0 ·13309 |
| 24 ·5 | 174 17 21 ·8 | —44 ·0 | 23 46 1 ·5 | + 6 ·3 | 0 ·13709 |
| 25 ·5 | 173 17 1 ·1 | 43 ·6 | 23 17 19 ·6 | 6 ·4 | 0 ·14127 |
| 26 ·5 | 172 18 24 ·9 | 43 ·3 | 22 48 34 ·7 | 6 ·5 | 0 ·14561 |
| 27 ·5 | 171 21 34 ·4 | —43 ·0 | 22 19 50 ·8 | + 6 ·9 | 0 ·15011 |
| 28 ·5 | 170 26 29 ·4 | 42 ·7 | 21 51 11 ·6 | 7 ·4 | 0 ·15475 |
| 29 ·5 | 169 33 9 ·3 | 42 ·4 | 21 22 39 ·8 | 7 ·8 | 0 ·15953 |
| 30 ·5 | 168 41 33 ·0 | —42 ·2 | 20 54 18 ·5 | + 8 ·3 | 0 ·16445 |
| 31 ·5 | 167 51 38 ·9 | —42 ·2 | —20 26 9 ·9 | + 8 ·8 | 0 ·16949 |

## TABLE XI.

Containing 730 Equations of Condition for correcting the assumed Elemen
Orbit of HALLEY's Comet, on July 30, 1835.

| Date. | Equations of Condition dependent upon Right Ascension |
|---|---|
| 1835. | ″ ″ ″ ″ ″ ″ |
| Aug. 1·5 | + 5·1 P — 55·8 Q + 301·0 R + 42·6 S + 1·0 U — 1·0 |
| 2·5 | + 5·1 P — 56·1 Q + 302·4 R + 42·6 S + 1·1 U — 0·9 |
| 3·5 | + 5·0 P — 56·5 Q + 303·8 R + 42·6 S + 1·1 U — 0·9 |
| 4·5 | + 4·9 P — 56·7 Q + 305·1 R + 42·7 S + 1·2 U — 0·8 |
| 5·5 | + 4·8 P — 56·9 Q + 306·4 R + 42·7 S + 1·1 U — 0·8 |
| 6·5 | + 4·7 P — 57·2 Q + 307·9 R + 42·8 S + 1·1 U — 0·8 |
| 7·5 | + 4·7 P — 57·3 Q + 309·5 R + 42·8 S + 1·4 U — 0·6 |
| 8·5 | + 4·5 P — 57·9 Q + 311·0 R + 42·9 S + 1·2 U — 0·6 |
| 9·5 | + 4·6 P — 58·0 Q + 312·7 R + 43·0 S + 1·4 U — 0·6 |
| 10·5 | + 4·4 P — 58·2 Q + 314·4 R + 43·0 S + 1·4 U — 0·5 |
| 11·5 | + 4·2 P — 58·5 Q + 315·9 R + 43·0 S + 1·3 U — 0·6 |
| 12·5 | + 4·2 P — 58·8 Q + 317·8 R + 43·1 S + 1·5 U — 0·5 |
| 13·5 | + 4·0 P — 59·2 Q + 319·7 R + 43·1 S + 1·4 U — 0·4 |
| 14·5 | + 3·9 P — 59·5 Q + 321·5 R + 43·2 S + 1·5 U — 0·4 |
| 15·5 | + 3·7 P — 59·8 Q + 323·3 R + 43·4 S + 1·5 U — 0·3 |
| 16·5 | + 3·6 P — 60·2 Q + 325·3 R + 43·4 S + 1·6 U — 0·2 |
| 17·5 | + 3·3 P — 60·6 Q + 327·3 R + 43·4 S + 1·7 U — 0·3 |
| 18·5 | + 3·2 P — 60·9 Q + 329·6 R + 43·5 S + 1·6 U — 0·1 |
| 19·5 | + 3·0 P — 61·4 Q + 331·7 R + 43·6 S + 1·5 U * |
| 20·5 | + 2·8 P — 61·8 Q + 333·8 R + 43·7 S + 1·6 U + 0·1 |
| 21·5 | + 2·6 P — 62·3 Q + 336·1 R + 43·7 S + 1·6 U + 0·1 |
| 22·5 | + 2·4 P — 62·6 Q + 338·5 R + 43·8 S + 1·7 U + 0·2 |
| 23·5 | + 2·3 P — 63·1 Q + 340·9 R + 44·0 S + 1·5 U + 0·4 |
| 24·5 | + 1·9 P — 63·4 Q + 343·5 R + 44·0 S + 1·7 U + 0·4 |
| 25·5 | + 1·6 P — 64·0 Q + 346·1 R + 44·2 S + 1·9 U + 0·5 |
| 26·5 | + 1·5 P — 64·5 Q + 348·8 R + 44·3 S + 1·9 U + 0·5 |
| 27·5 | + 1·4 P — 64·9 Q + 351·8 R + 44·6 S + 2·0 U + 0·7 |
| 28·5 | + 0·8 P — 65·5 Q + 354·5 R + 44·5 S + 2·1 U + 0·8 |
| 29·5 | + 0·6 P — 66·0 Q + 357·6 R + 44·6 S + 2·1 U + 1·0 |
| 30·5 | + 0·2 P — 66·7 Q + 360·7 R + 44·7 S + 2·1 U + 1·0 |
| ·5 | — 0·3 P — 67·3 Q + 363·9 R + 44·9 S + 2·2 U + 1·1 |

## TABLE XI.—*continued.*

Containing 730 Equations of Condition for correcting the assumed Elements of the Orbit of HALLEY's Comet, on July 30, 1835.

| Date. | Equations of Condition dependent upon Declinations. |
|---|---|
| 1835. | |
| Aug. 1·5 | — 4″·2 P + 16″·2 Q — 88″·9 R — 11″·5 S + 14″·5 U — 4″·3 V = E′ |
| 2·5 | — 4·3 P + 16·4 Q — 90·3 R — 11·5 S + 14·4 U — 4·2 V = E′ |
| 3·5 | — 4·5 P + 16·8 Q — 91·8 R — 11·6 S + 14·5 U — 3·9 V = E′ |
| 4·5 | — 4·5 P + 17·0 Q — 93·3 R — 11·8 S + 14·6 U — 3·7 V = E′ |
| 5·5 | — 4·6 P + 17·3 Q — 94·6 R — 11·8 S + 14·8 U — 3·5 V = E′ |
| 6·5 | — 4·8 P + 17·5 Q — 96·4 R — 12·1 S + 14·7 U — 3·3 V = E′ |
| 7·5 | — 5·0 P + 17·9 Q — 98·1 R — 12·1 S + 14·8 U — 3·1 V = E′ |
| 8·5 | — 5·0 P + 18·3 Q — 99·6 R — 12·6 S + 15·0 U — 2·9 V = E′ |
| 9·5 | — 4·9 P + 18·5 Q — 101·4 R — 12·5 S + 15·1 U — 2·6 V = E′ |
| 10·5 | — 5·4 P + 18·8 Q — 103·2 R — 12·8 S + 15·0 U — 2·4 V = E′ |
| 11·5 | — 5·4 P + 19·2 Q — 104·9 R — 12·8 S + 15·2 U — 2·2 V = E′ |
| 12·5 | — 5·6 P + 19·4 Q — 107·0 R — 13·0 S + 15·2 U — 2·0 V = E′ |
| 13·5 | — 5·5 P + 19·9 Q — 108·9 R — 13·1 S + 15·4 U — 1·6 V = E′ |
| 14·5 | — 5·6 P + 20·2 Q — 110·9 R — 13·4 S + 15·5 U — 1·3 V = E′ |
| 15·5 | — 5·7 P + 20·6 Q — 113·0 R — 13·7 S + 15·6 U — 1·1 V = E′ |
| 16·5 | — 6·0 P + 21·1 Q — 115·2 R — 13·9 S + 15·6 U — 0·9 V = E′ |
| 17·5 | — 6·0 P + 21·4 Q — 117·6 R — 13·8 S + 15·8 U — 0·6 V = E′ |
| 18·5 | — 6·2 P + 21·8 Q — 120·2 R — 14·1 S + 16·0 U — 0·3 V = E′ |
| 19·5 | — 6·3 P + 22·4 Q — 122·2 R — 14·4 S + 16·0 U * = E′ |
| 20·5 | — 6·8 P + 22·7 Q — 124·9 R — 14·8 S + 16·1 U + 0·3 V = E′ |
| 21·5 | — 6·8 P + 23·2 Q — 127·7 R — 15·0 S + 16·2 U + 0·6 V = E′ |
| 22·5 | — 6·9 P + 23·8 Q — 130·2 R — 14·9 S + 16·5 U + 0·9 V |
| 23·5 | — 7·5 P + 24·1 Q — 133·5 R — 15·7 S + 16·3 U + |
| 24·5 | — 7·3 P + 24·8 Q — 136·2 R — 15·7 S + 16·7 U |
| 25·5 | — 7·7 P + 25·3 Q — 139·5 R — 16·1 S + 16·9 |
| 26·5 | — 8·1 P + 25·9 Q — 142·7 R — 16·7 S + 17·0 |
| 27·5 | — 8·4 P + 26·3 Q — 146·5 R — 16·8 S + 17·0 |
| 28·5 | — 8·6 P + 27·2 Q — 149·9 R — 17·2 S + 17 |
| 29·5 | — 8·9 P + 27·8 Q — 153·6 R — 17·0 S + |
| 30·5 | — 9·0 P + 28·7 Q — 157·8 R — 17·5 S + |
| 31·5 | — 9·5 P + 29·4 Q — 162·1 R — 18·0 S - |

## TABLE XI.—*continued.*

| Date. | Equations of Condition dependent upon Right Ascensions |
|---|---|
| 1835. | ″ ″ ″ ″ ″ ″ |
| Aug. 31·5 | — 0·3 P — 67·3 Q + 363·9 R + 44·9 S + 2·2 U + 1·1 V |
| Sep. 1·5 | — 0·5 P — 67·8 Q + 367·2 R + 45·1 S + 2·4 U + 1·3 V |
| 2·5 | — 0·9 P — 68·6 Q + 370·7 R + 45·2 S + 2·3 U + 1·4 V |
| 3·5 | — 1·3 P — 69·1 Q + 374·5 R + 45·4 S + 2·4 U + 1·5 V |
| 4·5 | — 1·8 P — 69·8 Q + 378·2 R + 45·5 S + 2·5 U + 1·6 V |
| 5·5 | — 2·2 P — 70·5 Q + 382·1 R + 45·7 S + 2·6 U + 1·8 V |
| 6·5 | — 2·9 P — 71·3 Q + 386·2 R + 45·8 S + 2·6 U + 2·1 V |
| 7·5 | — 3·4 P — 72·1 Q + 390·5 R + 45·9 S + 2·7 U + 2·2 V |
| 8·5 | — 4·1 P — 73·0 Q + 394·7 R + 46·0 S + 2·7 U + 2·3 V |
| 9·5 | — 4·8 P — 73·8 Q + 399·3 R + 46·3 S + 3·0 U + 2·6 V |
| 10·5 | — 5·5 P — 74·7 Q + 404·1 R + 46·4 S + 3·0 U + 2·8 V |
| 11·5 | — 6·4 P — 75·6 Q + 409·3 R + 46·8 S + 3·1 U + 2·9 V |
| 12·5 | — 7·3 P — 76·5 Q + 414·3 R + 46·8 S + 3·2 U + 3·2 V |
| 13·5 | — 8·2 P — 77·3 Q + 419·8 R + 47·2 S + 3·4 U + 3·5 V |
| 14·5 | — 9·4 P — 78·5 Q + 425·4 R + 47·3 S + 3·4 U + 3·7 V |
| 15·5 | — 10·5 P — 79·7 Q + 431·0 R + 47·5 S + 3·5 U + 4·0 V |
| 16·5 | — 11·9 P — 80·8 Q + 437·0 R + 47·7 S + 3·7 U + 4·4 V |
| 17·5 | — 13·3 P — 81·7 Q + 443·8 R + 48·0 S + 3·9 U + 4·7 V |
| 18·5 | — 15·0 P — 83·1 Q + 450·4 R + 48·1 S + 3·9 U + 5·1 V |
| 19·5 | — 16·8 P — 84·5 Q + 457·0 R + 48·2 S + 4·3 U + 5·4 V |
| 20·5 | — 18·8 P — 85·7 Q + 463·9 R + 48·5 S + 4·4 U + 5·9 V |
| 21·5 | — 21·1 P — 87·2 Q + 471·3 R + 48·6 S + 4·6 U + 6·4 V |
| 22·5 | — 23·6 P — 89·1 Q + 478·6 R + 48·8 S + 4·9 U + 7·0 V |
| 23·5 | — 26·6 P — 90·0 Q + 485·9 R + 48·8 S + 5·1 U + 7·6 V |
| 24·5 | — 29·9 P — 90·9 Q + 493·6 R + 48·9 S + 5·4 U + 8·2 V |
| 25·5 | — 33·9 P — 92·5 Q + 500·3 R + 48·8 S + 5·9 U + 8·8 V |
| 26·5 | — 38·3 P — 94·3 Q + 506·6 R + 48·6 S + 6·1 U + 9·8 V |
| 27·5 | — 43·6 P — 94·7 Q + 512·6 R + 48·1 S + 6·6 U + 10·7 V |
| 28·5 | — 49·8 P — 96·0 Q + 516·4 R + 48·0 S + 7·1 U + 11·8 V |
| 29·5 | — 57·4 P — 96·6 Q + 518·0 R + 46·7 S + 7·7 U + 12·9 V |
| 30·5 | — 66·3 P — 96·5 Q + 516·3 R + 45·1 S + 8·5 U + 14·2 V |
| Oct. 1·5 | — 77·6 P — 95·3 Q + 506·8 R + 42·8 S + 9·2 U + 15·9 V |
| 1·75 | — 80·6 P — 94·7 Q + 504·1 R + 42·3 S + 9·7 U + 16·4 V |
| 2·0 | — 84·0 P — 94·1 Q + 499·6 R + 41·4 S + 9·7 U + 16·9 V |
| 2·25 | — 87·5 P — 93·3 Q + 495·0 R + 40·6 S + 10·0 U + 17·4 V |
| 2·5 | — 91·5 P — 92·3 Q + 489·5 R + 39·6 S + 10·1 U + 18·0 V |
| 2·75 | — 95·2 P — 91·0 Q + 483·2 R + 38·8 S + 10·2 U + 18·6 V |

## TABLE XI.—*continued.*

| Date. | Equations of Condition dependent upon Declinations. |
|---|---|
| 1835. | |
| g. 31·5 | — 9″·5 P + 29″·4 Q — 162″·1 R — 18″·0 S + 17″·9 U + 4″·5 V = E′ |
| p. 1·5 | — 10·0 P + 30·2 Q — 166·2 R — 18·2 S + 18·0 U + 4·9 V = E′ |
| 2·5 | — 10·1 P + 31·2 Q — 171·2 R — 18·8 S + 18·3 U + 5·4 V = E′ |
| 3·5 | — 10·5 P + 32·0 Q — 176·1 R — 19·3 S + 18·6 U + 6·0 V = E′ |
| 4·5 | — 11·2 P + 32·8 Q — 181·6 R — 19·8 S + 18·7 U + 6·4 V = E′ |
| 5·5 | — 11·4 P + 34·0 Q — 187·0 R — 20·2 S + 19·1 U + 7·1 V = E′ |
| 6·5 | — 11·8 P + 35·2 Q — 193·0 R — 20·8 S + 19·3 U + 7·7 V = E′ |
| 7·5 | — 12·4 P + 36·1 Q — 199·4 R — 21·2 S + 19·7 U + 8·4 V = E′ |
| 8·5 | — 12·9 P + 37·3 Q — 206·2 R — 22·1 S + 19·8 U + 8·9 V = E′ |
| 9·5 | — 13·5 P + 38·8 Q — 213·6 R — 22·5 S + 20·1 U + 9·7 V = E′ |
| 10·5 | — 14·2 P + 40·1 Q — 221·3 R — 23·3 S + 20·4 U + 10·2 V = E′ |
| 11·5 | — 14·9 P + 41·4 Q — 229·9 R — 23·8 S + 20·8 U + 11·1 V = E′ |
| 12·5 | — 15·6 P + 43·2 Q — 238·9 R — 24·8 S + 21·1 U + 12·0 V = E′ |
| 13·5 | — 16·5 P + 45·1 Q — 248·7 R — 25·7 S + 21·6 U + 12·8 V = E′ |
| 14·5 | — 17·3 P + 46·8 Q — 259·4 R — 26·5 S + 22·0 U + 13·8 V = E′ |
| 15·5 | — 18·3 P + 49·0 Q — 271·1 R — 27·5 S + 22·3 U + 14·7 V = E′ |
| 16·5 | — 19·4 P + 51·4 Q — 283·6 R — 28·6 S + 22·8 U + 15·8 V = E′ |
| 17·5 | — 20·6 P + 53·9 Q — 297·5 R — 29·6 S + 23·2 U + 16·8 V = E′ |
| 18·5 | — 21·9 P + 56·7 Q — 313·2 R — 31·2 S + 23·8 U + 18·1 V = E′ |
| 19·5 | — 23·4 P + 59·6 Q — 329·5 R — 32·4 S + 24·4 U + 19·4 V = E′ |
| 20·5 | — 25·0 P + 63·1 Q — 348·3 R — 34·1 S + 25·1 U + 20·8 V = E′ |
| 21·5 | — 26·9 P + 66·8 Q — 369·3 R — 36·0 S + 25·6 U + 22·2 V = E′ |
| 22·5 | — 29·0 P + 71·4 Q — 392·4 R — 38·1 S + 26·4 U + 23·9 V = E′ |
| 23·5 | — 31·5 P + 75·7 Q — 419·0 R — 40·4 S + 27·0 U + 25·9 V = E′ |
| 24·5 | — 34·0 P + 81·5 Q — 448·7 R — 42·8 S + 28·0 U + 27·6 V = E′ |
| 25·5 | — 37·2 P + 87·5 Q — 483·0 R — 45·8 S + 29·0 U + 29·6 V = E′ |
| 26·5 | — 40·9 P + 94·1 Q — 522·6 R — 49·2 S + 29·8 U + 31·8 V = E′ |
| 27·5 | — 45·0 P + 103·2 Q — 566·9 R — 53·1 S + 30·9 U + 34·2 V = E′ |
| 28·5 | — 49·9 P + 112·3 Q — 621·0 R — 57·6 S + 32·1 U + 36·8 V = E′ |
| 29·5 | — 55·6 P + 123·4 Q — 683·8 R — 63·0 S + 33·3 U + 39·8 V = E′ |
| 30·5 | — 62·3 P + 137·2 Q — 757·2 R — 69·4 S + 34·7 U |
| Oct. 1·5 | — 70·2 P + 153·1 Q — 847·4 R — 76·9 S + 36·0 |
| 1·75 | — 72·3 P + 157·6 Q — 872·2 R — 79·1 S + 36 |
| 2·0 | — 74·7 P + 162·3 Q — 898·2 R — 81·4 S + |
| 2·25 | — 77·1 P + 167·4 Q — 925·6 R — 83·7 S + |
| 2·5 | — 79·5 P + 172·5 Q — 954·5 R — 86·1 S |
| 2·75 | — 82·0 P + 178·3 Q — 984·8 R — 88·4 |

## TABLE XI.—*continued.*

| Date. | Equations of Condition dependent upon Right Ascensio | | | | | |
|---|---|---|---|---|---|---|
| 1835. | ″ | ″ | ″ | ″ | ″ | ″ |
| Oct. 2·75 | — 95·2 P | — 91·0 Q | + 483·2 R | + 38·8 S | +10·5 U | + 18·6 |
| 3·0 | — 99·5 P | — 89·6 Q | + 475·7 R | + 37·6 S | +10·7 U | + 19·1 |
| 3·25 | —104·0 P | — 87·8 Q | + 467·1 R | + 37·0 S | +11·1 U | + 19·7 |
| 3·5 | —108·8 P | — 86·0 Q | + 456·9 R | + 35·0 S | +11·4 U | + 20·2 |
| 3·75 | —113·8 P | — 84·0 Q | + 445·4 R | + 33·6 S | +11·9 U | + 21·0 |
| 4·0 | —119·3 P | — 81·8 Q | + 431·8 R | + 31·8 S | +12·2 U | + 21·6 |
| 4·25 | —125·1 P | — 79·5 Q | + 416·4 R | + 29·8 S | +12·7 U | + 22·2 |
| 4·5 | —131·4 P | — 76·3 Q | + 398·7 R | + 27·3 S | +13·1 U | + 22·9 |
| 4·75 | —138·0 P | — 72·7 Q | + 378·8 R | + 25·1 S | +13·7 U | + 23·7 |
| 5·0 | —145·2 P | — 68·7 Q | + 355·9 R | + 22·3 S | +14·0 U | + 24·6 |
| 5·25 | —152·7 P | — 63·9 Q | + 330·4 R | + 19·6 S | +14·7 U | + 25·5 |
| 5·5 | —161·4 P | — 58·4 Q | + 300·9 R | + 15·9 S | +15·1 U | + 26·4 |
| 5·75 | —170·3 P | — 52·3 Q | + 268·0 R | + 12·3 S | +15·7 U | + 27·4 |
| 6·0 | —180·0 P | — 45·3 Q | + 230·0 R | + 7·8 S | +16·3 U | + 28·4 |
| 6·125 | —185·0 P | — 41·4 Q | + 208·8 R | + 5·5 S | +16·6 U | + 28·9 |
| 6·25 | —190·2 P | — 37·3 Q | + 186·2 R | + 3·1 S | +17·0 U | + 29·4 |
| 6·375 | —195·7 P | — 33·0 Q | + 161·9 R | + 0·5 S | +17·2 U | + 29·9 |
| 6·5 | —201·4 P | — 28·3 Q | + 135·9 R | — 2·2 S | +17·5 U | + 30·4 |
| 6·625 | —207·2 P | — 23·3 Q | + 108·0 R | — 5·1 S | +18·0 U | + 31·0 |
| 6·75 | —213·3 P | — 17·8 Q | + 78·1 R | — 8·2 S | +18·5 U | + 31·6 |
| 6·875 | —219·8 P | — 11·9 Q | + 46·0 R | — 11·5 S | +18·8 U | + 32·1 |
| 7·0 | —226·5 P | — 5·7 Q | + 11·7 R | — 15·0 S | +19·1 U | + 32·7 |
| 7·125 | —233·2 P | + 0·8 Q | — 24·8 R | — 18·6 S | +19·6 U | + 33·4 |
| 7·25 | —240·3 P | + 7·8 Q | — 63·8 R | — 22·4 S | +20·0 U | + 34·1 |
| 7·375 | —247·8 P | + 15·2 Q | — 105·7 R | — 26·6 S | +20·4 U | + 34·7 |
| 7·5 | —255·6 P | + 23·3 Q | — 150·4 R | — 31·0 S | +20·8 U | + 35·3 |
| 7·625 | —263·5 P | + 32·2 Q | — 198·0 R | — 35·6 S | +21·3 U | + 36·0 |
| 7·75 | —271·6 P | + 41·8 Q | — 249·0 R | — 40·5 S | +21·9 U | + 36·6 |
| 7·875 | —280·3 P | + 51·9 Q | — 303·7 R | — 45·6 S | +22·3 U | + 37·2 |
| 8·0 | —289·4 P | + 62·7 Q | — 362·1 R | — 51·1 S | +22·7 U | + 37·8 |
| 8·125 | —298·7 P | + 74·3 Q | — 424·4 R | — 57·0 S | +23·4 U | + 38·4 |
| 8·25 | —308·1 P | + 86·7 Q | — 490·9 R | — 63·3 S | +24·0 U | + 39·0 |
| 8·375 | —318·1 P | + 99·9 Q | — 561·6 R | — 70·1 S | +24·4 U | + 39·7 |
| 8·5 | —328·6 P | +114·0 Q | — 636·9 R | — 77·2 S | +24·8 U | + 40·3 |
| 8·625 | —339·0 P | +129·0 Q | — 716·9 R | — 84·6 S | +25·5 U | + 40·9 |
| 8·75 | —349·5 P | +144·9 Q | — 801·8 R | — 92·4 S | +26·1 U | + 41·5 |
| 8·875 | —360·3 P | +161·8 Q | — 892·6 R | —100·6 S | +26·6 U | + 42·1 |

## TABLE XI.—*continued.*

| Date. | Equations of Condition dependent upon Declinations |
|---|---|
| 1835. | |
| 2·75 | — 82″·0 P + 178″·3 Q — 984″·8 R — 88″·4 S + 38″·0 U + 51″·0 V = E′ |
| 3·0 | — 84·7 P + 184·2 Q — 1016·9 R — 91·0 S + 38·5 U + 51·8 V = E′ |
| 3·25 | — 87·5 P + 190·6 Q — 1050·5 R — 93·7 S + 38·8 U + 52·8 V = E′ |
| 3·5 | — 90·4 P + 197·1 Q — 1086·1 R — 96·7 S + 39·1 U + 53·6 V = E′ |
| 3·75 | — 93·3 P + 203·9 Q — 1123·4 R — 99·8 S + 39·5 U + 54·6 V = E′ |
| 4·0 | — 96·5 P + 211·0 Q — 1162·9 R — 103·2 S + 39·9 U + 55·6 V = E′ |
| 4·25 | — 99·7 P + 218·0 Q — 1204·5 R — 106·7 S + 40·4 U + 56·6 V = E′ |
| 4·5 | — 102·8 P + 226·2 Q — 1248·2 R — 110·6 S + 40·8 U + 57·7 V = E′ |
| 4·75 | — 106·1 P + 234·6 Q — 1294·0 R — 114·4 S + 41·1 U + 58·6 V = E′ |
| 5·0 | — 109·6 P + 243·2 Q — 1341·9 R — 118·4 S + 41·5 U + 59·4 V = E′ |
| 5·25 | — 112·8 P + 252·7 Q — 1392·0 R — 122·4 S + 41·9 U + 60·4 V = E′ |
| 5·5 | — 116·3 P + 262·5 Q — 1444·8 R — 126·8 S + 42·0 U + 61·0 V = E′ |
| 5·75 | — 119·7 P + 272·7 Q — 1499·5 R — 131·3 S + 42·4 U + 61·8 V = E′ |
| 6·0 | — 123·1 P + 283·0 Q — 1557·3 R — 135·6 S + 42·5 U + 62·3 V = E′ |
| 6·125 | — 124·6 P + 288·5 Q — 1587·2 R — 137·9 S + 42·7 U + 62·5 V = E′ |
| 6·25 | — 126·1 P + 294·0 Q — 1617·7 R — 140·4 S + 42·8 U + 62·7 V = E′ |
| 6·375 | — 127·4 P + 299·7 Q — 1648·9 R — 142·9 S + 42·9 U + 63·0 V = E′ |
| 6·5 | — 128·7 P + 305·5 Q — 1680·6 R — 145·6 S + 42·9 U + 63·2 V = E′ |
| 6·625 | — 130·0 P + 311·4 Q — 1712·9 R — 148·2 S + 42·9 U + 63·4 V = E′ |
| 6·75 | — 131·2 P + 317·4 Q — 1745·6 R — 150·8 S + 42·9 U + 63·6 V = E′ |
| 6·875 | — 132·2 P + 323·5 Q — 1778·6 R — 153·3 S + 43·0 U + 63·7 V = E′ |
| 7·0 | — 133·1 P + 329·6 Q — 1812·0 R — 155·9 S + 43·0 U + 63·8 V = E′ |
| 7·125 | — 133·8 P + 335·6 Q — 1845·6 R — 158·5 S + 43·0 U + 63·9 V = E′ |
| 7·25 | — 134·3 P + 341·7 Q — 1879·5 R — 161·1 S + 42·9 U + 63·9 V = E′ |
| 7·375 | — 134·5 P + 348·1 Q — 1913·6 R — 163·5 S + 42·8 U + 63·8 V = E′ |
| 7·5 | — 134·6 P + 354·4 Q — 1947·7 R — 165·9 S + 42·6 U + 63·6 V = E′ |
| 7·625 | — 134·2 P + 360·6 Q — 1981·5 R — 168·3 S + 42·4 U + 63·5 V = E′ |
| 7·75 | — 133·5 P + 366·8 Q — 2015·0 R — 170·7 S + 42·2 U + 63·3 V = E′ |
| 7·875 | — 132·4 P + 372·8 Q — 2048·0 R — 173·1 S + 42·0 U + 62·9 V = E′ |
| 8·0 | — 130·9 P + 378·6 Q — 2080·2 R — 175·4 S + 41·7 U + 62·4 V = E′ |
| 8·125 | — 128·9 P + 384·2 Q — 2111·5 R — 177·5 S + 41· [illegible] = [illegible] |
| 8·25 | — 126·5 P + 389·6 Q — 2141·4 R — 179·4 S + [illegible] |
| 8·375 | — 123·5 P + 394·6 Q — 2169·4 R — 181·0 S + [illegible] |
| 8·5 | — 119·8 P + 399·2 Q — 2195·3 R — 182·3 S [illegible] |
| 8·625 | — 115·3 P + 403·3 Q — 2218·7 R — 183·6 S [illegible] |
| 8·75 | — 110·0 P + 406·9 Q — 2239·0 R — 184·5 [illegible] |
| 8·875 | — 103·7 P + 409·9 Q — 2255·7 R — 184·8 [illegible] |

## TABLE XI.—*continued.*

| Date. | Equations of Condition dependent upon Right Ascensions. | | | | | |
|---|---|---|---|---|---|---|
| 1835. | ″ | ″ | ″ | ″ | ″ | ″ |
| Oct. 8·875 | —360·3 P | +161·8 Q | — 892·6 R | —100·6 S | +26·6 U | + 42·1 V |
| 9·0 | —371·3 P | +179·7 Q | — 987·6 R | —109·3 S | +27·1 U | + 42·6 V |
| 9·125 | —382·3 P | +198·5 Q | —1088·6 R | —118·4 S | +27·7 U | + 43·1 V |
| 9·25 | —393·3 P | +218·3 Q | —1195·0 R | —127·9 S | +28·3 U | + 43·5 V |
| 9·375 | —404·3 P | +239·3 Q | —1306·7 R | —137·6 S | +28·9 U | + 43·9 V |
| 9·5 | —415·0 P | +261·0 Q | —1423·4 R | —147·7 S | +29·5 U | + 44·2 V |
| 9·625 | —425·4 P | +283·6 Q | —1545·2 R | —158·1 S | +30·0 U | + 44·3 V |
| 9·75 | —435·4 P | +306·8 Q | —1671·3 R | —168·8 S | +30·5 U | + 44·3 V |
| 9·875 | —445·0 P | +330·8 Q | —1801·3 R | —179·7 S | +30·8 U | + 44·1 V |
| 10·0 | —453·8 P | +355·2 Q | —1934·2 R | —190·8 S | +31·1 U | + 43·8 V |
| 10·125 | —461·7 P | +380·1 Q | —2069·3 R | —202·0 S | +31·3 U | + 43·4 V |
| 10·25 | —468·5 P | +404·9 Q | —2205·3 R | —213·1 S | +31·5 U | + 42·8 V |
| 10·375 | —474·5 P | +429·7 Q | —2341·2 R | —224·1 S | +31·4 U | + 42·0 V |
| 10·5 | —479·0 P | +454·1 Q | —2475·4 R | —234·7 S | +31·3 U | + 41·0 V |
| 10·625 | —481·1 P | +478·0 Q | —2606·2 R | —244·6 S | +31·0 U | + 39·8 V |
| 10·75 | —481·4 P | +501·0 Q | —2732·4 R | —253·8 S | +30·6 U | + 38·4 V |
| 10·875 | —480·5 P | +522·6 Q | —2852·3 R | —262·4 S | +30·1 U | + 36·9 V |
| 11·0 | —477·9 P | +542·7 Q | —2964·9 R | —270·2 S | +29·6 U | + 35·2 V |
| 11·125 | —473·5 P | +561·2 Q | —3068·8 R | —277·2 S | +29·0 U | + 33·4 V |
| 11·25 | —467·4 P | +577·8 Q | —3163·4 R | —283·4 S | +28·3 U | + 31·4 V |
| 11·375 | —459·7 P | +592·3 Q | —3247·4 R | —288·6 S | +27·6 U | + 29·4 V |
| 11·5 | —450·4 P | +604·7 Q | —3320·5 R | —292·6 S | +26·8 U | + 27·3 V |
| 11·625 | —439·7 P | +615·0 Q | —3382·0 R | —295·1 S | +25·8 U | + 25·0 V |
| 11·75 | —427·9 P | +623·2 Q | —3432·1 R | —296·6 S | +24·4 U | + 22·7 V |
| 11·875 | —415·3 P | +629·2 Q | —3470·6 R | —297·6 S | +23·3 U | + 20·3 V |
| 12·0 | —402·0 P | +633·2 Q | —3498·3 R | —297·9 S | +22·3 U | + 18·0 V |
| 12·125 | —387·7 P | +635·3 Q | —3515·4 R | —296·9 S | +21·3 U | + 15·7 V |
| 12·25 | —373·1 P | +635·7 Q | —3523·0 R | —295·2 S | +20·2 U | + 13·5 V |
| 12·375 | —358·3 P | +634·5 Q | —3521·7 R | —292·8 S | +19·1 U | + 11·3 V |
| 12·5 | —343·2 P | +631·7 Q | —3512·3 R | —289·8 S | +18·0 U | + 9·1 V |
| 12·625 | —327·8 P | +627·4 Q | —3495·6 R | —286·4 S | +16·8 U | + 7·1 V |
| 12·75 | —312·3 P | +621·8 Q | —3472·2 R | —282·5 S | +15·7 U | + 5·2 V |
| 12·875 | —297·4 P | +615·4 Q | —3442·8 R | —278·2 S | +14·7 U | + 3·4 V |
| 13·0 | —282·7 P | +608·2 Q | —3408·1 R | —273·6 S | +13·8 U | + 1·6 V |
| 13·125 | —268·2 P | +600·5 Q | —3369·1 R | —268·7 S | +13·1 U | — 0·1 V |
| 13·25 | —254·0 P | +592·2 Q | —3326·3 R | —263·5 S | +12·3 U | — 1·7 V |
| 13·375 | —240·4 P | +583·3 Q | —3280·3 R | —258·0 S | +11·3 U | — 3·2 V |

## TABLE XI.—*continued.*

| Date. | Equations of Condition dependent upon Declinations. |
|---|---|
| 1835. | ″ ″ ″ ″ ″ ″ |
| Oct. 8·875 | −103·7 P +409·9 Q −2255·7 R −184·8 S +38·1 U + 57·1 V = E′ |
| 9·0 | − 96·4 P +412·1 Q −2268·1 R −184·6 S +37·4 U + 56·1 V = E′ |
| 9·125 | − 88·0 P +413·3 Q −2275·3 R −184·1 S +36·7 U + 54·8 V = E′ |
| 9·25 | − 78·4 P +413·4 Q −2277·3 R −183·0 S +35·9 U + 53·5 V = E′ |
| 9·375 | − 67·6 P +412·4 Q −2272·8 R −181·1 S +35·0 U + 52·1 V = E′ |
| 9·5 | − 55·4 P +410·1 Q −2261·1 R −178·4 S +34·0 U + 50·7 V = E′ |
| 9·625 | − 41·8 P +406·2 Q −2241·3 R −175·0 S +33·1 U + 49·1 V = E′ |
| 9·75 | − 26·7 P +400·6 Q −2212·5 R −170·8 S +32·1 U + 47·4 V = E′ |
| 9·875 | − 10·3 P +393·3 Q −2173·9 R −165·8 S +30·7 U + 45·8 V = E′ |
| 10·0 | + 7·7 P +384·1 Q −2124·9 R −159·8 S +29·2 U + 44·1 V = E′ |
| 10·125 | + 27·2 P +372·7 Q −2064·9 R −152·8 S +28·0 U + 42·4 V = E′ |
| 10·25 | + 47·8 P +359·3 Q −1993·6 R −144·9 S +26·8 U + 40·7 V = E′ |
| 10·375 | + 69·6 P +343·7 Q −1910·7 R −136·1 S +25·3 U + 39·0 V = E′ |
| 10·5 | + 92·5 P +326·0 Q −1816·3 R −126·2 S +23·8 U + 37·4 V = E′ |
| 10·625 | +116·7 P +306·1 Q −1710·2 R −115·1 S +22·6 U + 36·1 V = E′ |
| 10·75 | +141·5 P +284·3 Q −1593·5 R −103·2 S +21·4 U + 34·9 V = E′ |
| 10·875 | +166·6 P +260·6 Q −1466·9 R − 90·7 S +20·2 U + 33·9 V = E′ |
| 11·0 | +191·8 P +235·4 Q −1331·7 R − 77·5 S +19·0 U + 33·1 V = E′ |
| 11·125 | +217·1 P +208·9 Q −1189·0 R − 63·7 S +18·2 U + 32·7 V = E′ |
| 11·25 | +242·0 P +181·4 Q −1040·8 R − 49·6 S +17·4 U + 32·5 V = E′ |
| 11·375 | +265·9 P +153·1 Q − 888·8 R − 35·6 S +16·5 U + 32·5 V = E′ |
| 11·5 | +288·9 P +124·6 Q − 734·8 R − 21·5 S +15·6 U + 32·7 V = E′ |
| 11·625 | +310·9 P + 96·2 Q − 580·3 R − 7·5 S +15·3 U + 33·5 V = E′ |
| 11·75 | +331·6 P + 68·1 Q − 427·0 R + 6·4 S +15·0 U + 34·5 V = E′ |
| 11·875 | +350·6 P + 40·8 Q − 277·0 R + 20·0 S +14·9 U + 35·7 V = E′ |
| 12·0 | +368·0 P + 14·4 Q − 131·3 R + 32·4 S +14·8 U + 37·2 V = E′ |
| 12·125 | +383·6 P − 11·0 Q + 8·4 R + 44·3 S +14·8 U + 38·8 V = E′ |
| 12·25 | +397·7 P − 35·0 Q + 141·5 R + 55·6 S +15·0 U + 40·8 V = E′ |
| 12·375 | +409·5 P − 57·2 Q + 267·0 R + 66·2 S +15·4 U + 43·2 V = E′ |
| 12·5 | +419·7 P − 77·6 Q + 384·5 R + 76·2 S +16·0 U + 45·8 V = E′ |
| 12·625 | +429·0 P − 96·0 Q + 493·5 R + 85·3 S +16·7 U + 48·2 V = E′ |
| 12·75 | +436·8 P −112·7 Q + 593·7 R + 93·4 S +17·4 U + 51·0 V = E′ |
| 12·875 | +442·4 P −127·8 Q + 684·8 R +100·7 S +18·1 U + 53·8 V = E′ |
| 13·0 | +446·4 P −141·2 Q + 767·2 R +106·9 S +18·8 U + 56·6 V = E′ |
| 13·125 | +449·1 P −153·1 Q + 840·8 R +112·4 S +19·6 U + 59·6 V = E′ |
| 13·25 | +450·5 P −163·5 Q + 906·0 R +117·2 S +20·5 U + 62·5 V = E′ |
| 13·375 | +450·7 P −172·3 Q + 962·9 R +121·4 S +21·4 U + 65·3 V = [illegible] |

## TABLE XI.—*continued.*

| Date. | Equations of Condition dependent upon Right Ascensions. | | | | | |
|---|---|---|---|---|---|---|
| 1835. | ″ | ″ | ″ | ″ | ″ | ″ |
| Oct. 13·375 | −240·4 P | +583·3 Q | −3280·3 R | −258·0 S | +11·3 U | − 3·2 V = |
| 13·5 | −227·2 P | +574·2 Q | −3231·5 R | −252·4 S | +10·3 U | − 4·6 V = |
| 13·625 | −214·2 P | +565·2 Q | −3180·3 R | −246·8 S | + 9·6 U | − 5·9 V = |
| 13·75 | −201·6 P | +556·1 Q | −3127·2 R | −241·1 S | + 8·9 U | − 7·1 V = |
| 13·875 | −189·6 P | +546·7 Q | −3072·4 R | −235·4 S | + 8·2 U | − 8·1 V = |
| 14·0 | −178·0 P | +537·0 Q | −3016·5 R | −229·7 S | + 7·6 U | − 9·0 V = |
| 14·125 | −166·8 P | +527·1 Q | −2959·8 R | −224·0 S | + 7·0 U | − 10·0 V = |
| 14·25 | −156·2 P | +517·2 Q | −2902·7 R | −218·3 S | + 6·5 U | − 11·0 V = |
| 14·375 | −146·2 P | +507·3 Q | −2845·5 R | −212·6 S | + 5·8 U | − 11·7 V = |
| 14·5 | −136·6 P | +497·3 Q | −2788·2 R | −207·0 S | + 5·2 U | − 12·3 V = |
| 14·625 | −127·3 P | +487·2 Q | −2730·8 R | −201·4 S | + 4·7 U | − 13·0 V = |
| 14·75 | −118·3 P | +477·0 Q | −2673·6 R | −195·9 S | + 4·3 U | − 13·6 V = |
| 14·875 | −109·8 P | +466·6 Q | −2616·8 R | −190·6 S | + 3·9 U | − 14·1 V = |
| 15·0 | −101·7 P | +456·3 Q | −2560·6 R | −185·5 S | + 3·6 U | − 14·6 V = |
| 15·125 | − 93·9 P | +446·2 Q | −2505·1 R | −180·4 S | + 3·2 U | − 15·1 V = |
| 15·25 | − 86·6 P | +436·3 Q | −2450·5 R | −175·3 S | + 2·9 U | − 15·6 V = |
| 15·375 | − 79·8 P | +426·7 Q | −2396·8 R | −170·4 S | + 2·4 U | − 16·0 V = |
| 15·5 | − 73·3 P | +417·3 Q | −2344·1 R | −165·6 S | + 2·0 U | − 16·3 V = |
| 15·625 | − 67·0 P | +408·1 Q | −2292·3 R | −160·9 S | + 1·6 U | − 16·7 V = |
| 15·75 | − 60·9 P | +399·1 Q | −2241·4 R | −156·2 S | + 1·3 U | − 17·0 V = |
| 15·875 | − 55·3 P | +390·4 Q | −2191·7 R | −151·8 S | + 1·0 U | − 17·3 V = |
| 16·0 | − 49·9 P | +381·9 Q | −2142·9 R | −147·5 S | + 0·8 U | − 17·5 V = |
| 16·25 | − 39·8 P | +365·3 Q | −2048·3 R | −139·0 S | + 0·3 U | − 17·9 V = |
| 16·5 | − 30·8 P | +349·6 Q | −1958·7 R | −131·4 S | − 0·2 U | − 18·3 V = |
| 16·75 | − 22·3 P | +334·5 Q | −1873·1 R | −123·8 S | − 0·5 U | − 18·5 V = |
| 17·0 | − 15·2 P | +320·0 Q | −1791·9 R | −117·0 S | − 0·8 U | − 18·5 V = |
| 17·25 | − 8·2 P | +306·3 Q | −1714·4 R | −110·5 S | − 1·0 U | − 18·6 V = |
| 17·5 | − 2·6 P | +293·3 Q | −1641·7 R | −104·3 S | − 1·3 U | − 18·6 V = |
| 17·75 | + 3·0 P | +280·9 Q | −1572·6 R | − 98·3 S | − 1·4 U | − 18·6 V = |
| 18·0 | + 7·9 P | +269·4 Q | −1507·4 R | − 92·8 S | − 1·6 U | − 18·4 V = |
| 18·25 | + 12·7 P | +258·4 Q | −1445·2 R | − 87·4 S | − 1·7 U | − 18·4 V = |
| 18·5 | + 16·2 P | +248·1 Q | −1387·0 R | − 82·9 S | − 1·8 U | − 18·2 V = |
| 18·75 | + 20·3 P | +238·3 Q | −1331·9 R | − 78·1 S | − 1·9 U | − 18·1 V = |
| 19·0 | + 23·3 P | +228·8 Q | −1280·0 R | − 74·1 S | − 1·8 U | − 18·0 V = |
| 19·25 | + 26·6 P | +220·1 Q | −1230·3 R | − 69·8 S | − 2·0 U | − 17·9 V = |
| 19·5 | + 29·1 P | +211·9 Q | −1183·7 R | − 66·4 S | − 2·4 U | − 17·6 V = |
| | + 31·8 P | +204·0 Q | −1139·1 R | − 62·5 S | − 2·2 U | − 17·6 V = |

## TABLE XI.—*continued.*

| Date. | Equations of Condition dependent upon Declinations. |
|---|---|
| 1835. | |
| Oct. 13·375 | +450·7″ P −172·3″ Q + 962·9″ R +121·4″ S +21·4″ U + 65·3″ V = E′ |
| 13·5 | +449·6 P −180·0 Q +1012·0 R +124·9 S +22·3 U + 68·1 V = E′ |
| 13·625 | +447·6 P −187·3 Q +1053·6 R +127·7 S +23·2 U + 70·9 V = E′ |
| 13·75 | +444·5 P −193·7 Q +1088·0 R +129·8 S +24·0 U + 73·6 V = E′ |
| 13·875 | +440·3 P −198·8 Q +1115·6 R +131·1 S +24·6 U + 76·1 V = E′ |
| 14·0 | +435·5 P −202·8 Q +1137·0 R +131·9 S +25·2 U + 78·5 V = E′ |
| 14·125 | +430·2 P −205·8 Q +1153·1 R +132·5 S +26·1 U + 80·9 V = E′ |
| 14·25 | +424·2 P −207·9 Q +1163·9 R +132·6 S +27·0 U + 83·2 V = E′ |
| 14·375 | +417·3 P −209·4 Q +1169·6 R +132·1 S +27·5 U + 85·3 V = E′ |
| 14·5 | +410·0 P −210·2 Q +1171·0 R +131·2 S +28·0 U + 87·3 V = E′ |
| 14·625 | +402·8 P −209·8 Q +1168·5 R +130·2 S +28·7 U + 89·2 V = E′ |
| 14·75 | +395·4 P −208·6 Q +1162·6 R +128·9 S +29·3 U + 91·0 V = E′ |
| 14·875 | +387·6 P −206·6 Q +1153·3 R +127·4 S +29·7 U + 92·5 V = E′ |
| 15·0 | +379·5 P −203·9 Q +1141·4 R +125·6 S +30·1 U + 93·9 V = E′ |
| 15·125 | +371·5 P −201·0 Q +1127·5 R +123·8 S +30·6 U + 95·3 V = E′ |
| 15·25 | +363·4 P −197·9 Q +1111·5 R +121·8 S +31·1 U + 96·5 V = E′ |
| 15·375 | +354·9 P −194·5 Q +1093·5 R +119·4 S +31·3 U + 97·5 V = E′ |
| 15·5 | +346·5 P −190·9 Q +1074·1 R +116·9 S +31·4 U + 98·3 V = E′ |
| 15·625 | +338·2 P −187·0 Q +1054·0 R +114·6 S +31·7 U + 99·1 V = E′ |
| 15·75 | +330·0 P −182·9 Q +1032·9 R +112·2 S +31·9 U + 99·8 V = E′ |
| 15·875 | +321·6 P −178·8 Q +1010·9 R +109·6 S +31·9 U +100·3 V = E′ |
| 16·0 | +313·2 P −174·6 Q + 988·0 R +106·9 S +31·9 U +100·7 V = E′ |
| 16·25 | +297·3 P −165·9 Q + 941·0 R +101·8 S +32·1 U +101·5 V = E′ |
| 16·5 | +281·7 P −157·3 Q + 892·8 R + 96·6 S +31·8 U +101·7 V = E′ |
| 16·75 | +266·9 P −149·0 Q + 843·8 R + 91·6 S +31·9 U +101·8 V = E′ |
| 17·0 | +252·5 P −141·0 Q + 795·4 R + 86·5 S +31·5 U +101·5 V = E′ |
| 17·25 | +239·4 P −132·9 Q + 748·8 R + 81·9 S +31·5 U +101·2 V = E′ |
| 17·5 | +226·3 P −125·4 Q + 703·6 R + 77·2 S +30·6 U +100·4 V = E′ |
| 17·75 | +214·4 P −117·6 Q + 661·0 R + 73·0 S +30·4 U + 99·7 V = E′ |
| 18·0 | +202·8 P −110·1 Q + 620·1 R + 68·6 S +29·7 U + 98·7 V = E′ |
| 18·25 | +192·3 P −102·9 Q + 581·7 R + 64·8 S +29·2 U + 97·6 V = E′ |
| 18·5 | +182·2 P − 96·3 Q + 545·0 R + 61·0 S +28·4 U + 96·4 V = E′ |
| 18·75 | +172·9 P − 89·9 Q + 510·4 R + 57·6 S +27·9 U + 95·3 V = E′ |
| 19·0 | +164·2 P − 84·0 Q + 477·8 R + 54·3 S +27·4 U + 94·2 V = E′ |
| 19·25 | +155·9 P − 78·6 Q + 446·8 R + 51·0 S +26·7 U + 92·8 V = E′ |
| 19·5 | +148·1 P − 73·7 Q + 417·7 R + 48·2 S +26·1 U + 91·5 V = E′ |
| 19·75 | +141·6 P − 69·1 Q + 390·6 R + 45·6 S +25·5 U + 90·1 V = E′ |

## TABLE XI.—*continued.*

| Date. | Equations of Condition dependent upon Right Ascensions. |
|---|---|
| 1835. | ″ ″ ″ ″ ″ ″ |
| Oct. 19·75 | + 31·3 P + 204·0 Q — 1139·1 R — 62·5 S — 2·2 U — 17·6 V = E |
| 20·0 | + 33·8 P + 196·3 Q — 1097·5 R — 59·5 S — 2·6 U — 17·6 V = E |
| 20·25 | + 35·9 P + 189·3 Q — 1057·5 R — 56·2 S — 2·6 U — 17·4 V = E |
| 20·5 | + 37·9 P + 182·6 Q — 1019·4 R — 53·2 S — 2·4 U — 17·0 V = E |
| 20·75 | + 39·8 P + 176·2 Q — 983·4 R — 50·1 S — 2·3 U — 16·6 V = E |
| 21·0 | + 41·2 P + 170·1 Q — 949·8 R — 47·5 S — 2·4 U — 16·5 V = E |
| 21·25 | + 42·8 P + 164·3 Q — 916·9 R — 44·7 S — 2·1 U — 16·3 V = E |
| 21·5 | + 44·0 P + 158·9 Q — 886·4 R — 42·4 S — 2·4 U — 16·0 V = E |
| 21·75 | + 45·5 P + 153·6 Q — 856·9 R — 39·8 S — 2·3 U — 15·9 V = E |
| 22·0 | + 46·4 P + 149·0 Q — 829·0 R — 37·9 S — 2·5 U — 15·7 V = E |
| 22·25 | + 47·9 P + 144·4 Q — 802·0 R — 35·6 S — 2·1 U — 15·5 V = E |
| 22·5 | + 48·3 P + 139·9 Q — 777·0 R — 34·0 S — 2·4 U — 15·3 V = E |
| 22·75 | + 49·6 P + 135·5 Q — 752·8 R — 31·7 S — 2·2 U — 15·1 V = E |
| 23·0 | + 50·3 P + 131·4 Q — 729·9 R — 30·2 S — 2·2 U — 14·8 V = E |
| 23·25 | + 51·2 P + 127·2 Q — 707·8 R — 28·2 S — 2·0 U — 14·6 V = E |
| 23·5 | + 51·6 P + 123·4 Q — 687·0 R — 26·8 S — 2·1 U — 14·4 V = E |
| 23·75 | + 52·6 P + 120·2 Q — 666·7 R — 24·9 S — 1·9 U — 14·1 V = E |
| 24·0 | + 53·0 P + 116·6 Q — 647·6 R — 23·6 S — 2·1 U — 14·0 V = E |
| 24·25 | + 53·8 P + 113·2 Q — 629·0 R — 22·0 S — 1·8 U — 14·0 V = E |
| 24·5 | + 54·1 P + 110·2 Q — 611·8 R — 20·9 S — 2·2 U — 13·9 V = E |
| 24·75 | + 54·9 P + 107·1 Q — 594·7 R — 19·2 S — 1·9 U — 13·6 V = E |
| 25·0 | + 55·1 P + 104·2 Q — 578·8 R — 18·3 S — 2·2 U — 13·5 V = E |
| 25·25 | + 55·7 P + 101·5 Q — 562·8 R — 16·8 S — 1·8 U — 13·3 V = E |
| 25·5 | + 56·0 P + 98·8 Q — 548·3 — 15·9 S — 2·1 U — 13·1 V = E |
| 25·75 | + 56·6 P + 96·0 Q — 533·8 R — 14·4 S — 1·8 U — 13·0 V = E |
| 26·0 | + 56·7 P + 93·4 Q — 520·4 R — 13·6 S — 2·1 U — 12·9 V = E |
| 26·25 | + 57·4 P + 90·9 Q — 507·1 R — 12·3 S — 1·7 U — 12·4 V = E |
| 26·5 | + 57·3 P + 88·5 Q — 494·8 R — 11·8 S — 2·0 U — 12·6 V = E |
| 26·75 | + 58·0 P + 86·3 Q — 482·3 R — 10·5 S — 1·7 U — 12·4 V = E |
| 27·0 | + 58·1 P + 84·3 Q — 470·8 R — 9·8 S — 1·9 U — 12·3 V = E |
| 27·25 | + 58·7 P + 82·4 Q — 459·0 R — 8·6 S — 1·5 U — 11·9 V = E |
| 27·5 | + 58·5 P + 80·4 Q — 448·6 R — 8·1 S — 1·9 U — 12·0 V = E |
| 27·75 | + 59·2 P + 78·7 Q — 437·7 R — 6·9 S — 1·6 U — 11·5 V = E |
| 28·0 | + 59·1 P + 77·1 Q — 427·9 R — 6·4 S — 1·8 U — 11·6 V = E |
| 28·25 | + 59·8 P + 75·6 Q — 417·7 R — 5·2 S — 1·2 U — 11·2 V = E |
| 28·5 | + 59·4 P + 73·6 Q — 409·0 R — 5·0 S — 1·9 U — 11·4 V = E |
| 29·5 | + 60·4 P + 67·5 Q — 375·4 R — 2·2 S — 1·6 U — 10·8 V = E |

## TABLE XI.—*continued.*

| Date. | Equations of Condition dependent upon Declinations. |
|---|---|
| 1835. | ″ ″ ″ ″ ″ ″ |
| Oct. 19·75 | +141·6 P − 69·1 Q + 390·6 R + 45·6 S +25·5 U + 90·1 V = E′ |
| 20·0 | +134·0 P − 64·7 Q + 364·7 R + 43·0 S +24·7 U + 88·8 V = E′ |
| 20·25 | +127·8 P − 60·7 Q + 340·8 R + 40·8 S +24·2 U + 87·4 V = E′ |
| 20·5 | +121·8 P − 57·0 Q + 318·0 R + 38·5 S +23·3 U + 86·0 V = E′ |
| 20·75 | +116·3 P − 53·3 Q + 297·1 R + 36·5 S +22·8 U + 84·6 V = E′ |
| 21·0 | +110·9 P − 49·7 Q + 277·4 R + 34·3 S +21·9 U + 83·8 V = E′ |
| 21·25 | +106·3 P − 46·2 Q + 259·4 R + 32·8 S +21·5 U + 82·1 V = E′ |
| 21·5 | +101·5 P − 43·0 Q + 242·3 R + 30·9 S +20·8 U + 80·8 V = E′ |
| 21·75 | + 97·4 P − 39·8 Q + 226·3 R + 29·5 S +20·4 U + 79·6 V = E′ |
| 22·0 | + 93·1 P − 37·0 Q + 211·4 R + 27·8 S +19·7 U + 78·3 V = E′ |
| 22·25 | + 89·3 P − 34·3 Q + 197·6 R + 26·6 S +19·2 U + 77·3 V = E′ |
| 22·5 | + 85·6 P − 31·9 Q + 184·3 R + 25·1 S +18·6 U + 75·9 V = E′ |
| 22·75 | + 82·3 P − 29·9 Q + 172·0 R + 23·9 S +18·1 U + 74·7 V = E′ |
| 23·0 | + 79·0 P − 27·9 Q + 160·3 R + 22·8 S +17·5 U + 73·6 V = E′ |
| 23·25 | + 76·2 P − 26·0 Q + 149·5 R + 21·8 S +17·1 U + 72·6 V = E′ |
| 23·5 | + 73·2 P − 24·3 Q + 139·2 R + 20·7 S +16·5 U + 71·5 V = E′ |
| 23·75 | + 70·5 P − 22·7 Q + 129·5 R + 19·7 S +16·0 U + 70·3 V = E′ |
| 24·0 | + 67·6 P − 21·2 Q + 120·3 R + 18·8 S +15·5 U + 69·3 V = E′ |
| 24·25 | + 65·6 P − 19·2 Q + 111·8 R + 18·1 S +15·2 U + 68·3 V = E′ |
| 24·5 | + 63·3 P − 17·9 Q + 103·7 R + 17·2 S +14·6 U + 67·3 V = E′ |
| 24·75 | + 61·1 P − 16·6 Q + 96·3 R + 16·5 S +14·3 U + 66·4 V = E′ |
| 25·0 | + 59·0 P − 15·3 Q + 89·3 R + 15·7 S +13·8 U + 65·4 V = E′ |
| 25·25 | + 57·1 P − 14·1 Q + 82·8 R + 15·1 S +13·4 U + 64·3 V = E′ |
| 25·5 | + 55·3 P − 13·1 Q + 76·7 R + 14·6 S +13·0 U + 63·7 V = E′ |
| 25·75 | + 53·6 P − 12·2 Q + 70·7 R + 14·0 S +12·6 U + 62·7 V = E′ |
| 26·0 | + 51·9 P − 11·4 Q + 65·2 R + 13·4 S +12·2 U + 61·9 V = E′ |
| 26·25 | + 50·3 P − 10·6 Q + 59·8 R + 12·9 S +11·8 U + 61·0 V = E′ |
| 26·5 | + 48·6 P − 10·0 Q + 54·7 R + 12·2 S +11·3 U + 60·0 V = E′ |
| 26·75 | + 47·4 P − 9·0 Q + 50·3 R + 12·0 S +11·2 U + 59·5 V = E′ |
| 27·0 | + 46·1 P − 8·1 Q + 45·9 R + 11·6 S +10·8 U + 58·7 V = E′ |
| 27·25 | + 44·8 P − 7·5 Q + 41·8 R + 11·1 S +10·4 U + 57·9 V = E′ |
| 27·5 | + 43·5 P − 6·7 Q + 37·9 R + 10·7 S +10·1 U + 57·2 V = E′ |
| 27·75 | + 42·3 P − 6·1 Q + 34·3 R + 10·4 S + 9·7 U + 56·4 V = E′ |
| 28·0 | + 41·1 P − 5·4 Q + 30·7 R + 9·9 S + 9·3 U + 55·7 V = E′ |
| 28·25 | + 40·1 P − 4·7 Q + 27·6 R + 9·7 S + 9·2 U + 55·0 V = E′ |
| 28·5 | + 39·0 P − 4·1 Q + 24·3 R + 9·3 S + 8·7 U + 53·8 V = E′ |
| 29 5 | + 35·4 P − 2·1 Q + 13·4 R + 8·2 S + 7·6 U + 51·7 V = E′ |

## TABLE XI.—*continued.*

| Date. | Equations of Condition dependent upon Right Ascensions. |
|---|---|
| 1835. | ″ ″ ″ ″ ″ ″ |
| Oct. 29·5 | + 60·4 P + 67·5 Q − 375·4 R − 2·2 S − 1·6 U − 10·8 V = E |
| 30·5 | + 61·2 P + 62·2 Q − 345·9 R + 0·3 S − 1·4 U − 10·4 V = E |
| 31·5 | + 61·9 P + 57·4 Q − 320·7 R + 2·4 S − 1·4 U − 9·9 V = E |
| Nov. 1·5 | + 62·5 P + 53·8 Q − 298·8 R + 4·3 S − 1·3 U − 9·5 V = E |
| 2·5 | + 63·0 P + 50·2 Q − 279·9 R + 6·0 S − 1·0 U − 9·2 V = E |
| 3·5 | + 63·7 P + 47·5 Q − 263·3 R + 7·6 S − 1·0 U − 8·7 V = E |
| 4·5 | + 64·2 P + 44·8 Q − 249·8 R + 8·9 S − 1·0 U − 8·2 V = E |
| 5·5 | + 64·7 P + 42·8 Q − 237·8 R + 10·1 S − 0·8 U − 7·7 V = E |
| 6·5 | + 64·9 P + 41·0 Q − 228·2 R + 11·1 S − 0·8 U − 7·5 V = E |
| 7·5 | + 65·6 P + 39·5 Q − 220·1 R + 12·3 S − 0·8 U − 7·3 V = E |
| 8·5 | + 66·1 P + 38·2 Q − 213·5 R + 13·3 S − 0·7 U − 6·9 V = E |
| 9·5 | + 66·5 P + 37·5 Q − 208·5 R + 14·1 S − 0·6 U − 6·7 V = E |
| 10·5 | + 66·8 P + 36·7 Q − 204·9 R + 15·0 S − 0·6 U − 6·3 V = E |
| 11·5 | + 67·0 P + 36·1 Q − 202·2 R + 15·6 S − 0·4 U − 6·1 V = E |
| 12·5 | + 67·7 P + 35·8 Q − 200·6 R + 16·8 S − 0·5 U − 5·9 V = E |
| 13·5 | + 67·7 P + 35·8 Q − 200·0 R + 17·0 S − 0·1 U − 5·5 V = E |
| 14·5 | + 68·0 P + 36·1 Q − 200·3 R + 17·6 S − 0·4 U − 5·4 V = E |
| 15·5 | + 68·1 P + 36·0 Q − 201·2 R + 18·3 S − 0·2 U − 4·9 V = E |
| 16·5 | + 68·0 P + 36·1 Q − 203·1 R + 18·7 S − 0·3 U − 4·9 V = E |
| 17·5 | + 68·1 P + 36·7 Q − 205·3 R + 19·0 S − 0·2 U − 4·5 V = E |
| 18·5 | + 68·1 P + 37·2 Q − 208·1 R + 19·9 S − 0·1 U − 4·3 V = E |
| 19·5 | + 68·0 P + 37·7 Q − 211·2 R + 20·2 S * − 4·0 V = E |
| 20·5 | + 67·9 P + 38·2 Q − 214·9 R + 21·1 S − 0·1 U − 3·8 V = E |
| 21·5 | + 67·6 P + 38·8 Q − 218·9 R + 20·9 S − 0·1 U − 3·7 V = E |
| 22·5 | + 67·3 P + 39·5 Q − 222·9 R + 21·2 S − 0·2 U − 3·3 V = E |
| 23·5 | + 67·0 P + 40·3 Q − 226·9 R + 21·7 S * − 3·2 V = E |
| 24·5 | + 66·7 P + 41·2 Q − 231·3 R + 22·0 S + 0·2 U − 3·1 V = E |
| 25·5 | + 66·4 P + 42·0 Q − 235·7 R + 22·3 S + 0·1 U − 2·9 V = E |
| 26·5 | + 65·8 P + 42·6 Q − 240·2 R + 22·6 S * − 2·8 V = E |
| 27·5 | + 65·4 P + 43·4 Q − 244·1 R + 22·9 S * − 2·6 V = E |
| 28·5 | + 64·9 P + 44·0 Q − 248·7 R + 23·2 S * − 2·4 V = E |
| 29·5 | + 64·4 P + 44·7 Q − 252·7 R + 23·5 S + 0·1 U − 2·2 V = E |
| 30·5 | + 63·9 P + 45·4 Q − 256·9 R + 23·8 S + 0·1 U − 2·1 V = E |
| Dec. 1·5 | + 63·5 P + 46·3 Q − 261·0 R + 24·3 S + 0·2 U − 1·8 V = E |
| 2·5 | + 62·9 P + 47·1 Q − 264·7 R + 24·3 S + 0·1 U − 1·7 V = E |
| 3·5 | + 62·2 P + 47·7 Q − 268·6 R + 24·6 S * − 1·6 V = E |
| 4·5 | + 61·7 P + 48·4 Q − 272·7 R + 24·8 S + 0·2 U − 1·4 V = E |

## TABLE XI.—*continued.*

| Date. | Equations of Condition dependent upon Declinations. |
|---|---|
| 1835. | |
| Oct. 29·5 | + 35·4″ P − 2·1″ Q + 13·4″ R + 8·2″ S + 7·6″ U + 51·7″ V = E′ |
| 30·5 | + 32·3 P − 0·8 Q + 4·6 R + 7·4 S + 6·6 U + 49·3 V = E′ |
| 31·5 | + 29·6 P + 0·5 Q − 2·6 R + 6·7 S + 5·6 U + 47·1 V = E′ |
| Nov. 1·5 | + 27·4 P + 1·6 Q − 8·4 R + 6·1 S + 4·7 U + 44·9 V = E′ |
| 2·5 | + 25·5 P + 2·5 Q − 13·1 R + 5·7 S + 4·1 U + 43·1 V = E′ |
| 3·5 | + 23·7 P + 3·0 Q − 17·1 R + 5·2 S + 3·1 U + 41·2 V = E′ |
| 4·5 | + 22·4 P + 3·7 Q − 20·4 R + 4·9 S + 2·5 U + 39·6 V = E′ |
| 5·5 | + 21·2 P + 4·2 Q − 23·1 R + 4·7 S + 1·9 U + 38·0 V = E′ |
| 6·5 | + 19·7 P + 4·6 Q − 25·6 R + 4·6 S + 1·2 U + 36·4 V = E′ |
| 7·5 | + 19·1 P + 5·0 Q − 27·6 R + 4·3 S + 0·7 U + 35·0 V = E′ |
| 8·5 | + 18·3 P + 5·3 Q − 29·4 R + 4·2 S + 0·1 U + 33·6 V = E′ |
| 9·5 | + 17·5 P + 5·5 Q − 31·1 R + 4·0 S − 0·4 U + 32·3 V = E′ |
| 10·5 | + 16·8 P + 5·8 Q − 32·6 R + 3·9 S − 0·9 U + 31·0 V = E′ |
| 11·5 | + 16·0 P + 5·8 Q − 34·1 R + 3·7 S − 1·5 U + 29·6 V = E′ |
| 12·5 | + 15·6 P + 6·2 Q − 35·0 R + 3·9 S − 1·7 U + 28·6 V = E′ |
| 13·5 | + 15·1 P + 6·4 Q − 36·3 R + 3·8 S − 1·8 U + 27·5 V = E′ |
| 14·5 | + 14·6 P + 6·8 Q − 37·3 R + 3·8 S − 2·5 U + 26·4 V = E′ |
| 15·5 | + 14·2 P + 6·8 Q − 38·2 R + 3·8 S − 2·9 U + 25·3 V = E′ |
| 16·5 | + 13·9 P + 7·1 Q − 39·3 R + 3·9 S − 3·1 U + 24·3 V = E′ |
| 17·5 | + 13·6 P + 7·3 Q − 40·0 R + 3·9 S − 3·4 U + 23·3 V = E′ |
| 18·5 | + 13·2 P + 7·4 Q − 41·2 R + 3·6 S − 3·8 U + 22·3 V = E′ |
| 19·5 | + 12·8 P + 7·5 Q − 42·2 R + 3·8 S − 4·1 U + 21·3 V = E′ |
| 20·5 | + 12·4 P + 7·7 Q − 43·2 R + 3·8 S − 4·4 U + 20·2 V = E′ |
| 21·5 | + 12·1 P + 7·8 Q − 44·1 R + 3·7 S − 4·7 U + 19·3 V = E′ |
| 22·5 | + 11·9 P + 7·7 Q − 44·7 R + 3·8 S − 4·6 U + 18·4 V = E′ |
| 23·5 | + 11·6 P + 8·2 Q − 45·7 R + 3·9 S − 5·1 U + 17·5 V = E′ |
| 24·5 | + 11·3 P + 8·3 Q − 46·6 R + 3·9 S − 5·4 U + 16·6 V = E′ |
| 25·5 | + 11·0 P + 8·5 Q − 47·4 R + 3·9 S − 5·6 U + 15·7 V = E′ |
| 26·5 | + 10·7 P + 8·4 Q − 48·3 R + 3·9 S − 5·8 U + 14·8 V = E′ |
| 27·5 | + 10·5 P + 8·7 Q − 48·9 R + 3·9 S − 6·1 U + 14·0 V = E′ |
| 28·5 | + 10·5 P + 8·8 Q − 49·7 R + 4·0 S − 6·2 U + 13·1 V = E′ |
| 29·5 | + 10·0 P + 8·9 Q − 50·3 R + 4·0 S − 6·4 U + 12·3 V = E′ |
| 30·5 | + 9·8 P + 9·1 Q − 51·0 R + 4·1 S − 6·6 U + 11·5 V = E′ |
| Dec. 1·5 | + 9·6 P + 9·2 Q − 51·8 R + 4·2 S − 6·8 U + 10·7 V = E′ |
| 2·5 | + 9·4 P + 9·3 Q − 52·4 R + 4·1 S − 7·0 U + 9·9 V = E′ |
| 3·5 | + 9·1 P + 9·4 Q − 53·1 R + 4·1 S − 7·2 U + 9·0 V = E′ |
| 4·5 | + 8·9 P + 9·5 Q − 53·8 R + 4·2 S − 7·2 U + 8·3 V = E′ |

## TABLE XI.—*continued.*

| Date. | Equations of Condition dependent upon Right Ascensions. |
|---|---|
| 1835. | |
| Dec. 4·5 | + 61·7″ P + 48·4″ Q − 272·7″ R + 24·8″ S + 0·2″ U − 1·4″ V = E |
| 5·5 | + 61·2 P + 49·3 Q − 275·4 R + 25·2 S + 0·2 U − 1·1 V = E |
| 6·5 | + 60·6 P + 49·5 Q − 279·1 R + 25·4 S + 0·1 U − 1·1 V = E |
| 7·5 | + 59·9 P + 50·1 Q − 282·7 R + 25·6 S + 0·1 U − 1·0 V = E |
| 8·5 | + 59·5 P + 50·8 Q − 285·6 R + 25·9 S + 0·1 U − 0·8 V = E |
| 9·5 | + 58·9 P + 51·5 Q − 289·1 R + 26·1 S + 0·1 U − 0·7 V = E |
| 10·5 | + 58·3 P + 51·6 Q − 292·1 R + 26·3 S + 0·1 U − 0·7 V = E |
| 11·5 | + 57·9 P + 52·4 Q − 295·1 R + 26·6 S + 0·2 U − 0·5 V = E |
| 12·5 | + 57·5 P + 52·7 Q − 297·7 R + 26·8 S + 0·2 U − 0·3 V = E |
| 13·5 | + 56·9 P + 53·3 Q − 300·6 R + 27·1 S + 0·1 U − 0·3 V = E |
| 14·5 | + 56·5 P + 54·0 Q − 303·5 R + 27·3 S + 0·2 U − 0·1 V = E |
| 15·5 | + 55·9 P + 54·4 Q − 306·1 R + 27·5 S + 0·2 U * = E |
| 16·5 | + 55·5 P + 54·7 Q − 308·7 R + 27·8 S + 0·1 U + 0·1 V = E |
| 17·5 | + 55·1 P + 55·4 Q − 311·2 R + 28·1 S + 0·2 U + 0·3 V = E |
| 18·5 | + 54·7 P + 56·0 Q − 313·6 R + 28·3 S + 0·1 U + 0·3 V = E |
| 19·5 | + 54·2 P + 56·6 Q − 316·6 R + 28·4 S * + 0·4 V = E |
| 20·5 | + 53·9 P + 56·8 Q − 318·9 R + 28·8 S * + 0·5 V = E |
| 21·5 | + 53·5 P + 57·0 Q − 321·9 R + 29·0 S * + 0·6 V = E |
| 22·5 | + 52·9 P + 57·3 Q − 324·2 R + 29·1 S − 0·3 U + 0·4 V = E |
| 23·5 | + 52·9 P + 58·3 Q − 326·6 R + 29·6 S * + 0·7 V = E |
| 24·5 | + 52·5 P + 59·0 Q − 328·9 R + 29·9 S + 0·1 U + 0·9 V = E |
| 25·5 | + 52·2 P + 58·9 Q − 331·5 R + 30·1 S + 0·1 U + 1·1 V = E |
| 26·5 | + 51·9 P + 59·7 Q − 334·1 R + 30·5 S * + 1·0 V = E |
| 27·5 | + 51·6 P + 60·0 Q − 336·7 R + 30·7 S * + 1·1 V = E |
| 28·5 | + 51·3 P + 60·5 Q − 339·2 R + 31·0 S − 0·1 U + 1·2 V = E |
| 29·5 | + 51·1 P + 61·0 Q − 341·8 R + 31·4 S − 0·1 U + 1·3 V = E |
| 30·5 | + 50·9 P + 61·5 Q − 345·2 R + 31·7 S − 0·1 U + 1·4 V = E |
| 31·5 | + 50·7 P + 62·3 Q − 347·6 R + 32·0 S * + 1·5 V = E |
| 1836. | |
| Jan. 1·5 | + 50·4 P + 62·0 Q − 351·2 R + 32·3 S − 0·1 U + 1·5 V = E |
| 2·5 | + 50·3 P + 62·6 Q − 353·5 R + 32·6 S − 0·2 U + 1·6 V = E |
| 3·5 | + 50·1 P + 63·6 Q − 356·0 R + 33·0 S − 0·2 U + 1·7 V = E |
| 4·5 | + 49·9 P + 63·7 Q − 359·5 R + 33·3 S − 0·2 U + 1·8 V = E |
| 5·5 | + 49·8 P + 65·0 Q − 362·0 R + 33·7 S − 0·2 U + 1·8 V = E |
| 6·5 | + 49·7 P + 65·2 Q − 365·8 R + 34·1 S − 0·1 U + 2·0 V = E |
| 7·5 | + 49·5 P + 65·6 Q − 368·6 R + 34·5 S − 0·3 U + 2·0 V = E |
| 8·5 | + 49·4 P + 65·7 Q − 372·4 R + 34·9 S − 0·3 U + 1·9 V = E |
| 9·5 | + 49·3 P + 67·1 Q − 375·1 R + 35·3 S − 0·3 U + 2·1 V = E |

## TABLE XI.—*continued.*

| Date. | Equations of Condition dependent upon Declinations. |
|---|---|
| 1835. | |
| Dec. 4·5 | + 8″·9 P + 9″·5 Q − 53″·8 R + 4″·2 S − 7″·2 U + 8″·3 V = E′ |
| 5·5 | + 8·8 P + 9·8 Q − 53·5 R + 4·3 S − 7·3 U + 7·5 V = E′ |
| 6·5 | + 8·5 P + 9·8 Q − 55·0 R + 4·3 S − 7·6 U + 6·7 V = E′ |
| 7·5 | + 8·4 P + 9·9 Q − 55·5 R + 4·4 S − 7·7 U + 6·0 V = E′ |
| 8·5 | + 8·2 P + 10·0 Q − 56·1 R + 4·5 S − 7·9 U + 5·3 V = E′ |
| 9·5 | + 8·1 P + 10·2 Q − 56·7 R + 4·4 S − 8·0 U + 4·5 V = E′ |
| 10·5 | + 7·8 P + 10·1 Q − 57·7 R + 4·5 S − 8·2 U + 3·7 V = E′ |
| 11·5 | + 7·8 P + 10·4 Q − 57·8 R + 4·6 S − 8·3 U + 3·1 V = E′ |
| 12·5 | + 7·6 P + 10·5 Q − 58·4 R + 4·7 S − 8·4 U + 2·4 V = E′ |
| 13·5 | + 7·4 P + 10·6 Q − 59·1 R + 4·7 S − 8·6 U + 1·6 V = E′ |
| 14·5 | + 7·3 P + 10·7 Q − 59·7 R + 4·7 S − 8·7 U + 0·9 V = E′ |
| 15·5 | + 7·1 P + 10·7 Q − 60·2 R + 4·9 S − 8·8 U + 0·1 V = E′ |
| 16·5 | + 7·0 P + 10·9 Q − 60·7 R + 5·1 S − 9·0 U − 0·6 V = E′ |
| 17·5 | + 6·8 P + 11·0 Q − 61·5 R + 5·0 S − 9·1 U − 1·3 V = E′ |
| 18·5 | + 6·8 P + 11·2 Q − 62·0 R + 5·1 S − 9·2 U − 2·0 V = E′ |
| 19·5 | + 6·6 P + 11·3 Q − 62·6 R + 5·2 S − 9·3 U − 2·6 V = E′ |
| 20·5 | + 6·5 P + 11·4 Q − 63·2 R + 5·2 S − 9·5 U − 3·3 V = E′ |
| 21·5 | + 6·4 P + 11·5 Q − 64·0 R + 5·4 S − 9·5 U − 4·0 V = E′ |
| 22·5 | + 6·0 P + 11·4 Q − 64·8 R + 5·2 S −10·0 U − 5·0 V = E′ |
| 23·5 | + 6·1 P + 11·7 Q − 65·3 R + 5·4 S − 9·9 U − 5·4 V = E′ |
| 24·5 | + 6·1 P + 12·1 Q − 65·8 R + 5·6 S −10·1 U − 6·1 V = E′ |
| 25·5 | + 6·0 P + 12·0 Q − 66·4 R + 5·7 S −10·0 U − 6·8 V = E′ |
| 26·5 | + 5·8 P + 12·1 Q − 67·2 R + 5·9 S −10·2 U − 7·5 V = E′ |
| 27·5 | + 5·7 P + 12·3 Q − 67·6 R + 6·0 S −10·3 U − 8·1 V = E′ |
| 28·5 | + 5·5 P + 12·3 Q − 68·5 R + 6·0 S −10·5 U − 9·0 V = E′ |
| 29·5 | + 5·4 P + 12·4 Q − 69·2 R + 6·2 S −10·6 U − 9·7 V = E′ |
| 30·5 | + 5·4 P + 12·6 Q − 69·9 R + 6·3 S −10·7 U − 10·3 V = E′ |
| 31·5 | + 5·0 P + 12·7 Q − 70·6 R + 6·3 S −10·8 U − 11·0 V = E′ |
| 1836. | |
| Jan. 1·5 | + 5·2 P + 13·0 Q − 71·1 R + 6·5 S −10·9 U − 11·7 V = E′ |
| 2·5 | + 5·0 P + 12·9 Q − 72·0 R + 6·5 S −11·0 U − 12·5 V = E′ |
| 3·5 | + 5·1 P + 13·3 Q − 72·4 R + 6·9 S −11·0 U − 13·0 V = E′ |
| 4·5 | + 4·9 P + 13·2 Q − 73·3 R + 6·9 S −11·2 U − 13·9 V = E′ |
| 5·5 | + 4·7 P + 13·4 Q − 73·9 R + 7·0 S −11·5 U − 14·6 V = E′ |
| 6·5 | + 4·6 P + 13·5 Q − 74·7 R + 7·1 S −11·6 U − 15·4 V = E′ |
| 7·5 | + 4·5 P + 13·6 Q − 75·4 R + 7·2 S −11·8 U − 16·2 V = E′ |
| 8·5 | + 4·1 P + 13·7 Q − 76·0 R + 7·4 S −11·8 U − 16·8 V = E′ |
| 9·5 | + 4·4 P + 14·0 Q − 76·6 R + 7·5 S −12·0 U − 17·5 V = E′ |

## TABLE XI.—*continued.*

| Date. | Equations of Condition dependent upon Right Ascensions. |
|---|---|
| 1836. | |
| Jan. 9·5 | + 49·3″ P + 67·1″ Q − 375·1″ R + 35·3″ S − 0·3″ U + 2·1″ V = E |
| 10·5 | + 49·2 P + 67·9 Q − 378·7 R + 35·7 S − 0·4 U + 2·1 V = E |
| 11·5 | + 49·1 P + 68·7 Q − 382·3 R + 36·2 S − 0·4 U + 2·1 V = E |
| 12·5 | + 49·0 P + 68·7 Q − 386·8 R + 36·8 S − 0·4 U + 2·2 V = E |
| 13·5 | + 49·0 P + 69·3 Q − 390·7 R + 37·3 S − 0·4 U + 2·3 V = E |
| 14·5 | + 49·0 P + 70·3 Q − 394·8 R + 37·7 S − 0·5 U + 2·5 V = E |
| 15·5 | + 49·0 P + 70·7 Q − 399·1 R + 38·2 S − 0·4 U + 2·4 V = E |
| 16·5 | + 48·8 P + 71·2 Q − 403·3 R + 38·8 S − 0·4 U + 2·3 V = E |
| 17·5 | + 48·3 P + 72·9 Q − 407·6 R + 39·3 S − 0·5 U + 2·5 V = E |
| 18·5 | + 48·9 P + 73·7 Q − 411·8 R + 40·1 S − 0·4 U + 2·6 V = E |
| 19·5 | + 48·8 P + 74·2 Q − 416·7 R + 40·4 S − 0·7 U + 2·6 V = E |
| 20·5 | + 48·8 P + 74·6 Q − 421·9 R + 40·1 S − 0·6 U + 2·5 V = E |
| 21·5 | + 48·9 P + 75·7 Q − 426·9 R + 41·8 S − 0·7 U + 2·6 V = E |
| 22·5 | + 48·8 P + 76·6 Q − 431·9 R + 42·3 S − 0·8 U + 2·5 V = E |
| 23·5 | + 48·7 P + 77·7 Q − 437·5 R + 43·1 S − 0·5 U + 2·6 V = E |
| 24·5 | + 48·8 P + 79·0 Q − 443·0 R + 43·7 S − 1·1 U + 2·4 V = E |
| 25·5 | + 49·0 P + 80·4 Q − 448·3 R + 44·7 S − 0·9 U + 2·7 V = E |
| 26·5 | + 49·0 P + 81·2 Q − 453·8 R + 45·4 S − 1·1 U + 2·6 V = E |
| 27·5 | + 49·0 P + 82·0 Q − 460·4 R + 46·2 S − 1·0 U + 2·6 V = E |
| 28·5 | + 49·0 P + 83·1 Q − 466·9 R + 47·0 S − 1·0 U + 2·5 V = E |
| 29·5 | + 49·0 P + 83·9 Q − 473·2 R + 47·8 S − 1·2 U + 2·4 V = E |
| 30·5 | + 49·1 P + 85·4 Q − 480·3 R + 48·9 S − 1·4 U + 2·5 V = E |
| 31·5 | + 49·3 P + 86·4 Q − 487·4 R + 49·7 S − 1·3 U + 2·4 V = E |
| 1·5 | + 49·3 P + 87·6 Q − 493·3 R + 50·9 S − 1·3 U + 2·5 V = E |
| 2·5 | + 49·2 P + 89·3 Q − 501·2 R + 51·6 S − 1·7 U + 2·2 V = E |
| 3·5 | + 49·3 P + 91·1 Q − 507·3 R + 52·7 S − 1·5 U + 2·2 V = E |
| 4·5 | + 49·3 P + 91·5 Q − 516·2 R + 53·7 S − 1·7 U + 2·1 V = E |
| 5·5 | + 49·3 P + 93·7 Q − 523·3 R + 54·8 S − 2·1 U + 2·0 V = E |
| 6·5 | + 49·4 P + 94·6 Q − 531·5 R + 55·9 S − 2·0 U + 1·8 V = E |
| 7·5 | + 49·3 P + 95·9 Q − 539·1 R + 57·0 S − 2·2 U + 1·5 V = E |
| 8·5 | + 49·4 P + 97·6 Q − 548·9 R + 58·3 S − 2·2 U + 1·5 V = E |
| 9·5 | + 49·4 P + 99·3 Q − 556·4 R + 59·5 S − 2·5 U + 1·2 V = E |
| 10·5 | + 49·3 P + 101·0 Q − 564·8 R + 61·0 S − 2·4 U + 1·2 V = E |
| 11·5 | + 49·3 P + 101·7 Q − 574·0 R + 62·1 S − 2·6 U + 0·9 V = E |
| 12·5 | + 49·3 P + 104·1 Q − 582·4 R + 63·4 S − 2·8 U + 0·7 V = E |
| 13·5 | + 49·2 P + 105·9 Q − 591·0 R + 65·0 S − 2·9 U + 0·5 V = E |
| 14·5 | + 49·0 P + 107·1 Q − 600·8 R + 66·0 S − 3·1 U + 0·3 V = E |

## TABLE XI.—*continued.*

| Date. | Equations of Condition dependent upon Declinations. |
|---|---|
| 1836. | |
| n. 9·5 | + 4·4″ P + 14·0″ Q − 76·6″ R + 7·5″ S − 12·0″ U − 17·5″ V = E′ |
| 10·5 | + 4·2 P + 14·0 Q − 77·4 R + 7·6 S − 12·2 U − 18·3 V = E′ |
| 11·5 | + 4·1 P + 14·1 Q − 78·1 R + 7·7 S − 12·3 U − 19·1 V = E′ |
| 12·5 | + 3·9 P + 14·2 Q − 78·8 R + 7·9 S − 12·4 U − 19·9 V = E′ |
| 13·5 | + 3·9 P + 14·4 Q − 79·4 R + 8·1 S − 12·5 U − 20·6 V = E′ |
| 14·5 | + 3·7 P + 14·5 Q − 80·0 R + 8·1 S − 12·9 U − 21·2 V = E′ |
| 15·5 | + 3·5 P + 14·6 Q − 80·6 R + 8·2 S − 12·9 U − 22·2 V = E′ |
| 16·5 | + 3·4 P + 14·7 Q − 81·2 R + 8·4 S − 13·0 U − 23·0 V = E′ |
| 17·5 | + 2·8 P + 14·9 Q − 81·7 R + 8·8 S − 13·1 U − 23·8 V = E′ |
| 18·5 | + 3·1 P + 15·0 Q − 82·2 R + 8·8 S − 13·3 U − 24·6 V = E′ |
| 19·5 | + 3·0 P + 15·1 Q − 82·7 R + 8·8 S − 13·5 U − 25·4 V = E′ |
| 20·5 | + 2·9 P + 15·2 Q − 83·1 R + 9·0 S − 13·8 U − 26·3 V = E′ |
| 21·5 | + 2·7 P + 15·2 Q − 83·4 R + 9·1 S − 13·7 U − 27·1 V = E′ |
| 22·5 | + 2·5 P + 15·3 Q − 83·9 R + 9·2 S − 14·0 U − 28·0 V = E′ |
| 23·5 | + 2·4 P + 15·4 Q − 84·1 R + 9·5 S − 14·1 U − 28·8 V = E′ |
| 24·5 | + 2·1 P + 15·4 Q − 84·3 R + 9·5 S − 14·2 U − 29·7 V = E′ |
| 25·5 | + 1·7 P + 15·3 Q − 84·6 R + 9·4 S − 14·6 U − 30·8 V = E′ |
| 26·5 | + 1·7 P + 15·5 Q − 84·4 R + 9·7 S − 14·5 U − 31·5 V = E′ |
| 27·5 | + 1·6 P + 15·6 Q − 84·4 R + 9·8 S − 14·7 U − 32·4 V = E′ |
| 28·5 | + 1·3 P + 15·5 Q − 84·2 R + 9·9 S − 14·8 U − 33·3 V = E′ |
| 29·5 | + 0·9 P + 15·4 Q − 84·1 R + 9·9 S − 15·0 U − 34·4 V = E′ |
| 30·5 | + 0·8 P + 15·5 Q − 83·6 R + 10·2 S − 15·1 U − 35·2 V = E′ |
| 31·5 | + 0·6 P + 15·5 Q − 83·0 R + 10·3 S − 15·3 U − 36·0 V = E′ |
| eb. 1·5 | + 0·3 P + 15·3 Q − 82·5 R + 10·2 S − 15·5 U − 37·2 V = E′ |
| 2·5 | * + 15·2 Q − 81·6 R + 10·3 S − 15·7 U − 38·0 V = E′ |
| 3·5 | − 0·3 P + 15·1 Q − 80·6 R + 10·4 S − 15·7 U − 39·1 V = E′ |
| 4·5 | − 0·7 P + 14·8 Q − 79·5 R + 10·3 S − 16·0 U − 40·1 V = E′ |
| 5·5 | − 1·0 P + 14·4 Q − 78·4 R + 10·1 S − 16·5 U − 41·2 V = E′ |
| 6·5 | − 1·3 P + 14·4 Q − 76·6 R + 10·3 S − 16·3 U − 42·1 V = E′ |
| 7·5 | − 1·7 P + 14·1 Q − 75·0 R + 10·1 S − 16·6 U − 43·2 V = E′ |
| 8·5 | − 2·1 P + 13·6 Q − 72·8 R + 10·0 S − 16·8 U − 44·3 V = E′ |
| 9·5 | − 2·4 P + 13·4 Q − 70·6 R + 10·0 S − 16·9 U − 45·2 V = E′ |
| 10·5 | − 2·8 P + 13·0 Q − 68·1 R + 10·0 S − 16·9 U − 46·3 V [illegible] |
| 11·5 | − 3·2 P + 12·4 Q − 65·5 R + 9·6 S − 17·3 U − |
| 12·5 | − 3·6 P + 11·8 Q − 62·5 R + 9·4 S − 17·5 U |
| 13·5 | − 4·2 P + 11·3 Q − 59·0 R + 9·3 S − 17·5 U |
| 14·5 | − 4·5 P + 10·6 Q − 55·5 R + 9·2 S − 17·7 U |

## TABLE XI.—*continued.*

| Date. | Equations of Condition dependent upon Right Ascens |
|---|---|
| 1836. | ″ ″ ″ ″ ″ ′ |
| Feb. 14·5 | + 49·0 P + 107·1 Q — 600·8 R + 66·0 S — 3·1 U + 0 |
| 15·5 | + 49·0 P + 109·0 Q — 608·7 R + 67·7 S — 3·0 U |
| 16·5 | + 48·7 P + 111·0 Q — 618·2 R + 69·2 S — 3·5 U — 0 |
| 17·5 | + 48·1 P + 112·7 Q — 628·1 R + 70·7 S — 3·5 U — 0 |
| 18·5 | + 48·4 P + 114·2 Q — 636·5 R + 72·3 S — 3·7 U — 1 |
| 19·5 | + 48·0 P + 116·2 Q — 645·1 R + 73·6 S — 3·9 U — 1 |
| 20·5 | + 47·9 P + 117·3 Q — 654·5 R + 75·2 S — 4·0 U — 1 |
| 21·5 | + 47·5 P + 119·0 Q — 663·1 R + 76·8 S — 4·3 U — 2 |
| 22·5 | + 47·2 P + 120·8 Q — 671·0 R + 78·4 S — 4·5 U — 2 |
| 23·5 | + 46·7 P + 122·9 Q — 679·2 R + 79·7 S — 4·7 U — 3 |
| 24·5 | + 46·3 P + 124·1 Q — 687·6 R + 81·3 S — 5·0 U — 3 |
| 25·5 | + 45·8 P + 125·3 Q — 694·9 R + 82·6 S — 5·2 U — 4 |
| 26·5 | + 45·2 P + 126·9 Q — 702·4 R + 84·2 S — 5·2 U — 4 |
| 27·5 | + 44·7 P + 127·8 Q — 709·1 R + 85·7 S — 6·1 U — 5 |
| 28·5 | + 44·2 P + 129·1 Q — 715·3 R + 87·4 S — 6·2 U — 5 |
| 29·5 | + 43·5 P + 129·9 Q — 721·1 R + 88·6 S — 6·4 U — 6 |
| Mar. 1·5 | + 42·8 P + 131·2 Q — 726·8 R + 89·9 S — 6·6 U — 7 |
| 2·5 | + 42·0 P + 132·1 Q — 731·5 R + 91·2 S — 6·3 U — 7 |
| 3·5 | + 41·2 P + 133·4 Q — 734·9 R + 92·4 S — 6·2 U — |
| 4·5 | + 40·3 P + 134·5 Q — 738·9 R + 93·1 S — 6·6 U — |
| 5·5 | + 39·7 P + 134·8 Q — 741·5 R + 94·8 S — 6·5 U — |
| 6·5 | + 38·6 P + 135·5 Q — 742·9 R + 95·4 S — 7·0 U — 1 |
| 7·5 | + 37·5 P + 135·0 Q — 744·4 R + 96·2 S — 7·1 U — 1 |
| 8·5 | + 36·7 P + 135·1 Q — 745·3 R + 97·2 S — 7·2 U — 1 |
| 9·5 | + 35·7 P + 135·4 Q — 745·4 R + 98·1 S — 7·4 U — 1 |
| 10·5 | + 34·7 P + 136·5 Q — 743·9 R + 98·8 S — 7·4 U — 1 |
| 11·5 | + 33·6 P + 135·3 Q — 742·5 R + 99·3 S — 7·7 U — 1 |
| 12·5 | + 32·5 P + 135·0 Q — 740·1 R + 99·7 S — 7·8 U — 1 |
| 13·5 | + 31·5 P + 134·7 Q — 737·0 R + 100·1 S — 8·1 U — 1 |
| 14·5 | + 30·5 P + 133·8 Q — 723·2 R + 100·2 S — 7·9 U — 1 |
| 15·5 | + 29·4 P + 133·6 Q — 728·5 R + 100·5 S — 7·1 U — 1 |
| 16·5 | + 28·3 P + 132·8 Q — 723·1 R + 100·6 S — 7·9 U — 1 |
| 17·5 | + 27·3 P + 131·4 Q — 717·8 R + 100·5 S — 8·0 U — 1 |
| 18·5 | + 26·2 P + 130·8 Q — 711·2 R + 100·5 S — 8·0 U — 1 |
| 19·5 | + 25·2 P + 129·7 Q — 704·9 R + 100·2 S — 8·2 U — 1 |
| 20·5 | + 24·2 P + 128·5 Q — 697·8 R + 100·2 S — 8·4 U — 1 |
| 21·5 | + 23·2 P + 126·9 Q — 690·6 R + 99·8 S — 8·1 U — 1 |

## TABLE XI.—*continued.*

| Date. | Equations of Condition dependent upon Declinations. |
|---|---|
| 1836. | |
| h. 14·5 | — 4·5 P + 10·6 Q — 55·5 R + 9·2 S —17·7 U — 50·6 V = E′ |
| 15·5 | — 4·9 P + 10·1 Q — 51·4 R + 8·6 S —17·8 U — 51·7 V = E′ |
| 16·5 | — 5·3 P + 9·3 Q — 46·6 R + 8·2 S —18·0 U — 52·8 V = E′ |
| 17·5 | — 6·0 P + 8·4 Q — 42·2 R + 7·9 S —18·1 U — 53·7 V = E′ |
| 18·5 | — 6·3 P + 7·5 Q — 37·5 R + 7·5 S —17·8 U — 54·9 V = E′ |
| 19·5 | — 6·8 P + 6·5 Q — 32·1 R + 6·9 S —18·3 U — 56·1 V = E′ |
| 20·5 | — 7·3 P + 5·6 Q — 26·1 R + 6·4 S —18·5 U — 57·2 V = E′ |
| 21·5 | — 7·8 P + 4·5 Q — 19·9 R + 5·8 S —18·6 U — 58·2 V = E′ |
| 22·5 | — 8·4 P + 3·3 Q — 13·6 R + 5·1 S —18·8 U — 59·3 V = E′ |
| 23·5 | — 8·9 P + 1·8 Q — 7·0 R + 4·2 S —18·9 U — 60·6 V = E′ |
| 24·5 | — 9·2 P + 0·9 Q + 0·6 R + 3·5 S —19·0 U — 61·3 V = E′ |
| 25·5 | — 9·8 P — 0·4 Q + 8·1 R + 2·8 S —18·9 U — 62·2 V = E′ |
| 26·5 | — 10·3 P — 1·9 Q + 15·9 R + 1·8 S —19·1 U — 63·4 V = E′ |
| 27·5 | — 10·8 P — 3·3 Q + 23·9 R + 0·9 S —18·4 U — 64·4 V = E′ |
| 28·5 | — 11·3 P — 4·3 Q + 32·1 R * —18·6 U — 65·4 V = E′ |
| 29·5 | — 11·6 P — 6·2 Q + 40·7 R — 1·1 S —18·5 U — 66·2 V = E′ |
| ar. 1·5 | — 12·1 P — 7·8 Q + 49·6 R — 2·1 S —18·6 U — 67·2 V = E′ |
| 2·5 | — 12·4 P — 9·3 Q + 58·6 R — 3·4 S —19·2 U — 68·0 V = E′ |
| 3·5 | — 12·9 P — 10·9 Q + 67·4 R — 4·3 S —19·2 U — 68·7 V = E′ |
| 4·5 | — 13·2 P — 12·8 Q + 76·3 R — 5·7 S —19·4 U — 69·7 V = E′ |
| 5·5 | — 14·0 P — 14·9 Q + 85·0 R — 7·3 S —19·7 U — 70·9 V = E′ |
| 6·5 | — 13·7 P — 16·1 Q + 94·2 R — 7·9 S —19·2 U — 71·2 V = E′ |
| 7·5 | — 14·0 P — 17·5 Q + 102·8 R — 9·1 S —19·3 U — 71·9 V = E′ |
| 8·5 | — 14·2 P — 18·8 Q + 112·0 R — 10·2 S —18·9 U — 72·2 V = E′ |
| 9·5 | — 14·4 P — 20·8 Q + 120·2 R — 11·8 S —18·2 U — 73·1 V = E′ |
| 10·5 | — 14·5 P — 22·6 Q + 128·4 R — 12·8 S —19·0 U — 73·6 V = E′ |
| 11·5 | — 14·5 P — 23·6 Q + 136·3 R — 13·9 S —18·7 U — 74·1 V = E′ |
| 12·5 | — 14·6 P — 25·0 Q + 143·8 R — 15·1 S —18·9 U — 74·6 V = E′ |
| 13·5 | — 14·8 P — 26·6 Q + 150·7 R — 16·3 S —18·8 U — 75·1 V = E′ |
| 14·5 | — 14·5 P — 27·5 Q + 157·8 R — 17·3 S —18·6 U — 75·2 V = E′ |
| 15·5 | — 14·5 P — 29·0 Q + 163·8 R — 18·4 S —18·5 U — 75·7 V = E′ |
| 16·5 | — 14·3 P — 30·1 Q + 169·7 R — 19·5 S —18·4 U — 76·0 V = E′ |
| 17·5 | — 14·1 P — 30·8 Q + 175·2 R — 20·3 S —18·3 U — 76·0 V = E′ |
| 18·5 | — 14·0 P — 32·1 Q + 179·9 R — 21·3 S —18·1 U — 76·1 V = E′ |
| 19·5 | — 13·8 P — 33·0 Q + 184·3 R — 22·2 S —18·0 U — 76·4 V = E′ |
| 20·5 | — 13·6 P — 33·5 Q + 188·3 R — 23·0 S —17·8 U — 76·5 V = E′ |
| 21·5 | — 13·3 P — 34·2 Q + 191·6 R — 23·9 S —17·8 U — 76·6 V = E′ |

## TABLE XI.—*continued.*

| Date. | Equations of Condition dependent upon Right Ascensions. |
|---|---|
| 1836. | |
| Mar. 21·5 | + 23″·2 P + 126″·9 Q − 690″·6 R + 99″·8 S − 8″·1 U − 17″·9 V |
| 22·5 | + 22·3 P + 126·1 Q − 682·8 R + 99·2 S − 8·2 U − 18·2 V |
| 23·5 | + 21·3 P + 124·7 Q − 674·4 R + 98·7 S − 8·0 U − 18·4 V |
| 24·5 | + 20·3 P + 123·0 Q − 666·2 R + 98·3 S − 8·1 U − 18·8 V |
| 25·5 | + 19·6 P + 121·5 Q − 657·4 R + 97·9 S − 7·8 U − 18·8 V |
| 26·5 | + 18·5 P + 120·1 Q − 648·4 R + 97·1 S − 8·1 U − 19·4 V |
| 27·5 | + 17·8 P + 118·2 Q − 639·6 R + 96·5 S − 7·9 U − 19·4 V |
| 28·5 | + 16·8 P + 116·9 Q − 630·8 R + 95·7 S − 7·9 U − 19·7 V |
| 29·5 | + 16·0 P + 114·9 Q − 621·4 R + 94·8 S − 7·9 U − 19·9 V |
| 30·5 | + 15·1 P + 113·9 Q − 611·6 R + 94·1 S − 7·9 U − 20·3 V |
| 31·5 | + 14·6 P + 114·0 Q − 600·5 R + 93·2 S − 7·9 U − 20·2 V |

## TABLE XI.—*continued.*

| Date. | Equations of Condition dependent upon Declinations. |
|---|---|
| 1836. | |
| Mar. 21·5 | $-13''\cdot3\,P - 34''\cdot2\,Q + 191''\cdot6\,R - 23''\cdot9\,S - 17''\cdot8\,U - 76''\cdot6\,V = E'$ |
| 22·5 | $-13\cdot0\,P - 34\cdot9\,Q + 194\cdot6\,R - 24\cdot3\,S - 17\cdot6\,U - 76\cdot5\,V = E'$ |
| 23·5 | $-12\cdot6\,P - 35\cdot3\,Q + 196\cdot9\,R - 24\cdot9\,S - 17\cdot4\,U - 76\cdot4\,V = E'$ |
| 24·5 | $-12\cdot3\,P - 35\cdot7\,Q + 199\cdot0\,R - 25\cdot6\,S - 17\cdot3\,U - 76\cdot5\,V = E'$ |
| 25·5 | $-12\cdot0\,P - 36\cdot1\,Q + 200\cdot8\,R - 26\cdot2\,S - 17\cdot0\,U - 76\cdot3\,V = E'$ |
| 26·5 | $-11\cdot6\,P - 36\cdot4\,Q + 201\cdot5\,R - 26\cdot6\,S - 16\cdot9\,U - 76\cdot2\,V = E'$ |
| 27·5 | $-11\cdot3\,P - 36\cdot4\,Q + 202\cdot2\,R - 26\cdot9\,S - 16\cdot7\,U - 76\cdot0\,V = E'$ |
| 28·5 | $-11\cdot0\,P - 36\cdot6\,Q + 202\cdot5\,R - 27\cdot1\,S - 16\cdot1\,U - 75\cdot7\,V = E'$ |
| 29·5 | $-10\cdot6\,P - 36\cdot5\,Q + 202\cdot5\,R - 27\cdot6\,S - 16\cdot4\,U - 75\cdot6\,V = E'$ |
| 30·5 | $-10\cdot3\,P - 36\cdot8\,Q + 201\cdot7\,R - 27\cdot8\,S - 16\cdot2\,U - 75\cdot3\,V = E'$ |
| 31·5 | $-9\cdot8\,P - 37\cdot9\,Q + 199\cdot9\,R - 28\cdot0\,S - 16\cdot1\,U - 74\cdot9\,V = E'$ |